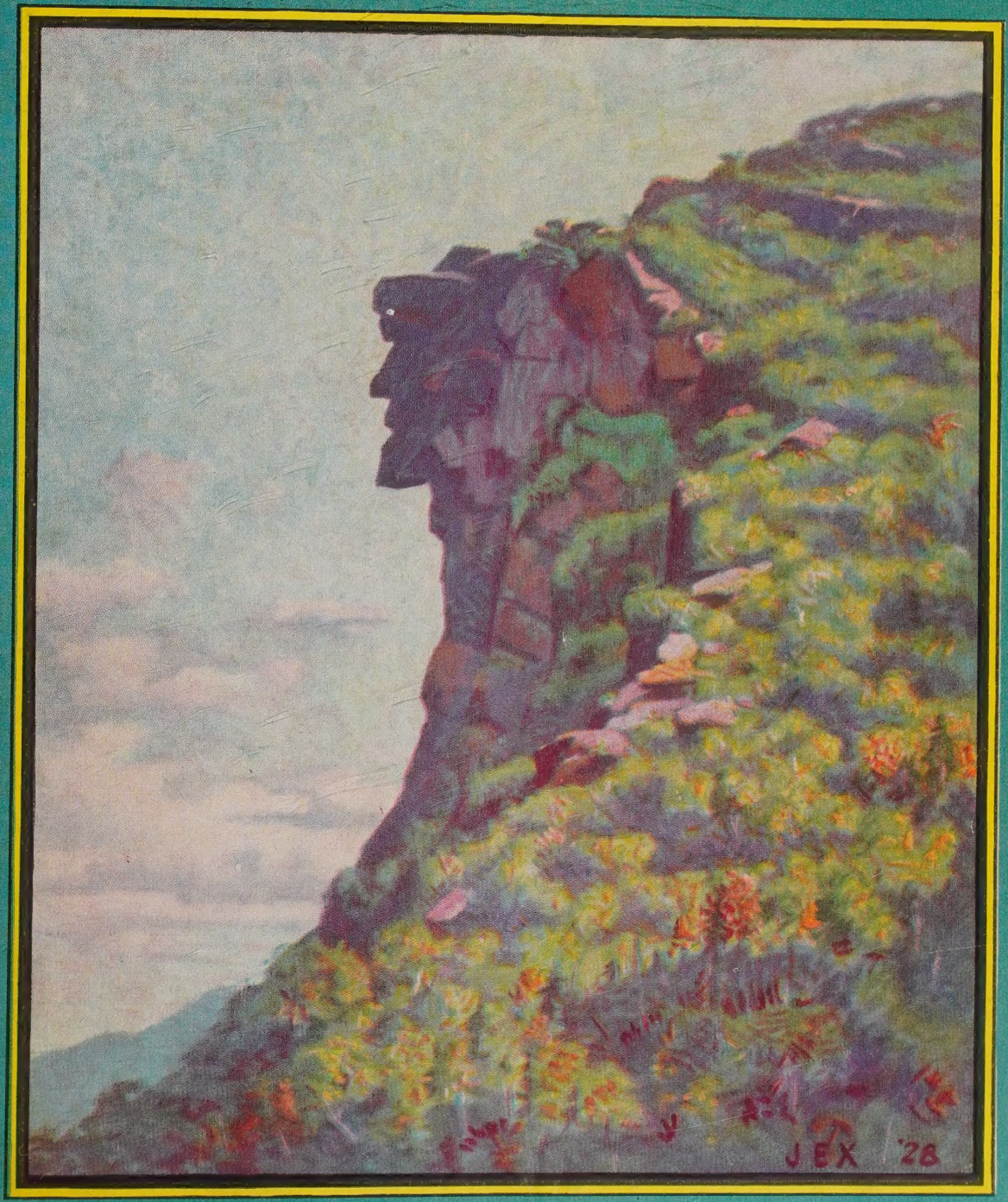
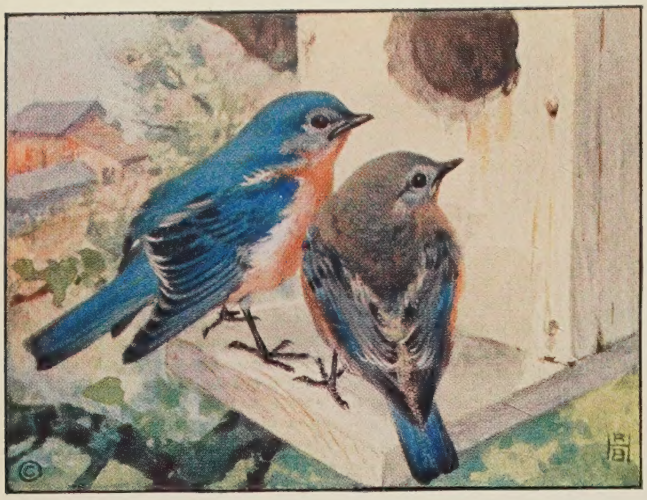
NATURE MAGAZINE



MAY
1929

New England Number
35¢

VOL. 13
NO. 5



BLUEBIRD—*Sialia sialis*

TREE SWALLOW—*Iridoprocne bicolor*

BIRD AND ANIMAL PAINTINGS

By R. Bruce Horsfall

168 PAINTINGS IN FULL COLOR

ONLY ONE DOLLAR

MANY readers of Nature Magazine have asked when the beautiful color pictures of birds, mammals and insects that have appeared in Nature Magazine would be available separate from the Magazine. The demand has been so insistent that this is the result:

A beautifully printed book containing 168 pictures in full colors, three and one-half by two and one-half inches, and a beautiful frontispiece has been printed and is now available.

Each picture is accompanied by concise description of the character and habits of the subject.

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Readers of Nature Magazine who own motion picture projectors for 16mm films will be glad to learn of the first release of movie films by William L. Finley made through Bell and Howell. These are two 100-foot reels, one of hummingbirds and one of monkey-faced owls. Mr. Finley's pictures need no introduction to any reader of Nature Magazine and many have heard Mr. Finley lecture and seen his lecture reels. Now it is possible to have these films for your own and for the delight of your family and friends. There are more to come for future Bell and Howell release, with "Renting Houses for Songs" and "Don Q, the California Quail" bringing the number of reels available to four. The price is $7.50 a reel.

* * *

Tracing the progress of civilization as it is linked with the progress of graphic expression, H. A. DeVry, president of the DeVry Corporation, has written an interesting booklet entitled *Is Civilization Moving West?* It is an up-to-date discussion of the question of visual education and of marked interest to the school teacher. This booklet is sold for ten cents but will be sent free to any school teacher asking for it on his or her school stationery.

* * *

In this connection it is worth noting that the education film courses produced by the DeVry Corporation have been purchased in sets of one or more for use in the schools of New York, Chicago, Cincinnati, Los Angeles, Newark and many other cities. Several museums and universities have also added them to their equipment.

* * *

Amateur photographers not already acquainted with *American Photography* should remedy this situation at once. Not only does this monthly publication have fine articles of helpful character but it runs a special market department for its readers and other helpful departments.

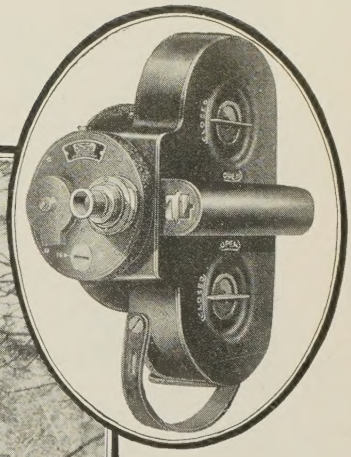
* * *

Through the arrangement of a license agreement the Bell and Howell Company is now able to supply all the necessary attachments and equipment for the taking of Kodacolor pictures with Filmo cameras and for projecting them with Filmo projectors.

* * *

Visual education through the medium of motion pictures scored again in a test made by the Eastman Kodak Company with the sanction of a committee of the National Education Association. Dr. B. D. Wood of Columbia University and Dr. F. N. Freeman of the University of Chicago conducted the test over a ten-week period. The result showed, in a word, that children enjoying this phase of teaching make an average gain of 33 per cent in geography and 15 per cent in science. It was also brought out that the motion pictures were an important factor in sustaining the interest of the children. The Eastman Kodak Company is going actively into the work of furthering visual education along these lines.

Ready for instant action . .



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The most flexible and highly perfected personal movie camera obtainable at any price. With carrying case, $180 and upward.

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The woods and streams of New England are typical of the many regions, rich in opportunities for unusual wild life studies. As you move quietly through trees and over stones your Filmo is always ready for instant action.

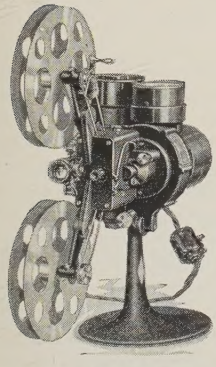
No matter what quarry you start, there's little chance of losing it in the surprise of the moment. Your Filmo goes into action immediately and, "*What you see, you get.*" Many marvelous opportunities have been lost through failure to be ready! Filmo is *always* ready and Filmo Movies tell *all* of the story.

Filmo cameras come in two sizes—both models are ideal for general outdoor use. Special lenses for telephoto work and Kodacolor are available for either camera, making it possible to take the fullest advantage of every picture opportunity.

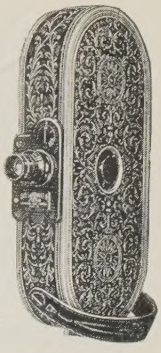
Filmo cameras have the same precision and accuracy found in Bell & Howell studio cameras with which professional movies have been made for 22 years.

For black and white pictures, Filmo cameras use Eastman Safety Film (16 mm.)—in the yellow box—both regular and panchromatic—obtainable at practically all dealers handling cameras and supplies. Filmo cameras and Filmo Projectors are adaptable, under license from Eastman Kodak Company, for use of Eastman Kodacolor film for home movies in full color. Cost of film covers developing and return postpaid, within the country where processed, ready to show at home or anywhere.

Write for illustrated movie booklet "What You See, You Get," or visit your local dealer for a complete Filmo demonstration.



Filmo Projector
Projects pictures of theater clearness and brilliancy. Simple—operates from any light socket. Runs forward, backward, or stops on any single picture. Price, with case, $190 and upward.



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The pocket size movie Camera—weighs only 3½ pounds. Choice of three colors—Walnut Brown, Ebony Black, Silver Birch. Price $120 with case.

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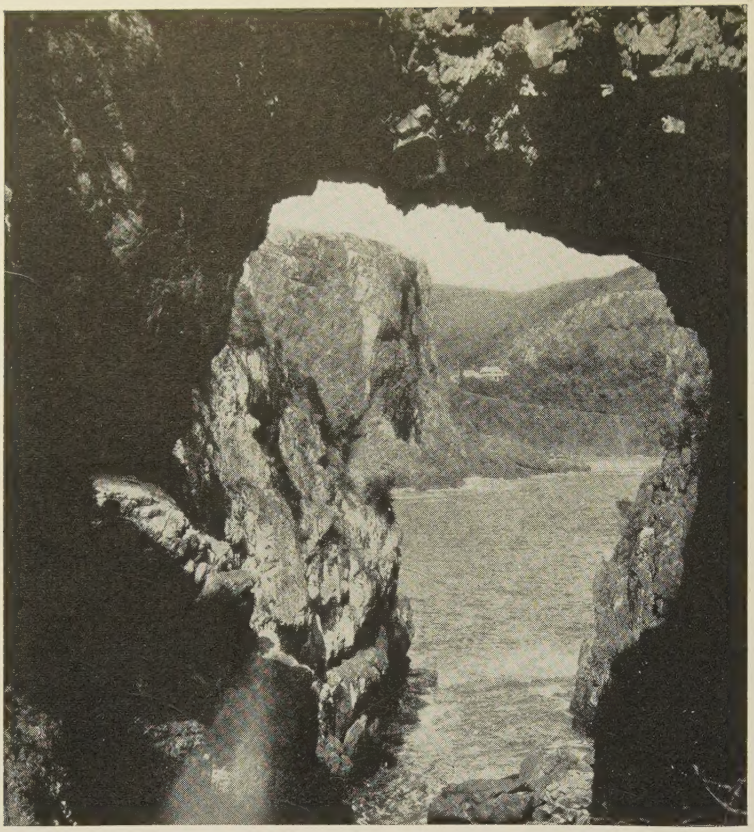

To see ▲ *the unusual*

To do ▲ *something different*

To find ▲ *new joys* ▲ *pleasures and thrills*

These are the reasons why people now go to

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Visit this year-round travel land of mellow sunshine before it, too, loses the glamour . . . the mystery . . . it still possesses.

Here colorful, quaint, primitive Bantu life still exists side by side with modern civilization. Here weird, thrilling, Zulu war dances can still be witnessed. You will marvel at the huge mountains with splendid vistas . . . the beautiful botanical gardens . . . the tremendous Kruger National Park, the world's greatest game preserve, where, while motoring, big game can be safely studied in its natural environment.

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See, while in that fascinating country,

The Majestic Victoria Falls
The Speedy, Preening Ostriches
The Magic Cango Caves
The Mysterious Zimbabwe Ruins
The Glorious Cape Peninsula
Mile Deep Gold Mines
Acres of Diamonds

Write for fully illustrated travel literature, and booklet OD-2

South Africa Travel Bureau

South Africa

Room 657
11 Broadway
New York City

With her mountains and lakes, seashores and rivers, New England has come to vie successfully as a summer playground with other recreationally-rich sections of our country. Just about everything that the work-weary desire, whether it be the mountain trail or the more formal seaside resort, can be found at its best in our little group of six northeastern states. In bringing together this New England Number the editors of Nature Magazine have sought to capture the spirit of the outdoors in this section and to pass on at least some of the facts of the interesting things to be seen or to be done there. Complete justice cannot be done, however, in the pages of one magazine or within the covers of one book. New England must be seen and known really to be appreciated.

* * *

On the cover of this issue is reproduced a painting of the Old Man of the Mountain in Franconia Notch, New Hampshire, now preserved for posterity as a reservation. This picture and articles in the magazine suggest the beauties of the White Mountains of New Hampshire and Maine and the Green Mountains of Vermont, where one may follow well-marked mountain trails or find rest and recreation in many beautifully-located hotels. This section is reached over excellent motor roads or over the tracks of the Boston and Maine Railroad. This department will be glad to send readers information relative to hotel resorts in any part of New England or data about the services rendered by the railroad lines.

* * *

Maine is particularly rich in the variety of its lure to the vacationist. If one seeks to penetrate the deep woods, there to fish and camp in the very heart of Wild Nature the facilities are there to offer. On the shores of its many lakes there are camps for old and young. Along its seashore are many summer colonies for every purse and every taste. Beautiful Acadia National Park, recently renamed, is becoming more and more the destination of the summer vacationist. This lovely archipelago of islands offers recreation on shore and on water.

* * *

One of the most delightful variations of a summer trip to New England is that of water travel. Steamship lines running from New York to Boston, Fall River, Providence and New London offer a way of approach which is worthwhile. The Merchants and Miners line from Philadelphia, Baltimore and Norfolk, and the Eastern Steamship Company from New York run excellent boats into Boston. The latter line operates fine vessels from Boston to Bangor, Bath, Rockland and other Maine points with various beautiful trips such as that up the Saguenay. Write to the Travel

Mention NATURE MAGAZINE. *It will facilitate service*

Something new for Nature Lovers!

Nature Magazine's **12-day Wild Life Study Tour**

of Glacier NATIONAL PARK

***Only* $215.00** *from Chicago all expenses included*

This is the opportunity of a lifetime for nature lovers to make an intimate study of the interesting wild life found along the scenic trails of Glacier National Park.

Personally conducted by a National Park Service nature guide, members of this Study Tour will see and identify the thousands of beautiful wild flowers, the birds and animals in this primitive mountain homeland of the Blackfeet Indians.

An itinerary has been planned which gives you every assurance of seeing at close range and in their native haunts, Rocky Mountain goats, bighorn sheep, silver-tip, black and brown bears, deer, marmots, conies, ground squirrels and many other animals.

The low all-expense rate for this special Nature Study Tour—$215—includes all railroad and motor travel, saddle trips, lodgings, meals, and a lower berth on the de luxe Great Northern train from Chicago to Glacier Park and return.

tune in on the Great Northern Railway "Empire Builders" every Monday, 10:30 P. M., Eastern Time, over Coast-to-Coast network of National Broadcasting Company.

GREAT NORTHERN

A dependable railway

Only a limited number of reservations are available. Make your plans now. For itinerary and complete information, write Travel Editor, Nature Magazine, 1214 16th Street, Washington, D. C.

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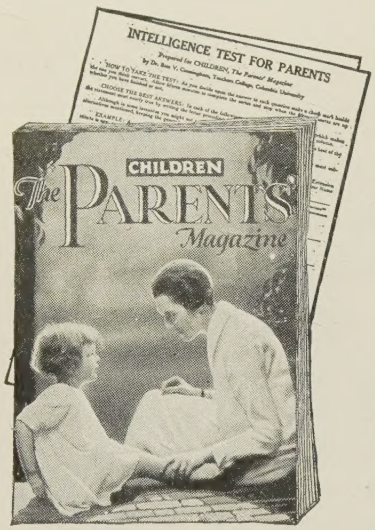

Have you ever been officially rated as a parent?

Have you ever taken an Intelligence Test for Parents?

THIS magazine will give such a test without charge to a limited number of new subscribers.

The test has been prepared for us by Dr. Bess V. Cunningham, Associate Professor of Education, Teachers College, Columbia University.

It contains 33 questions which you should be able to answer 90% correctly. This test will be sent to you immediately upon receipt of the coupon below. Return it with your answers. It will be corrected and sent back to you with an individual rating.

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The regular subscription price is $2.00 a year. But to get the Intelligence Test for Parents you may send a 6 months' trial subscription for ONLY $1.00.

CHILDREN, The Parents' Magazine, 255 Fourth Ave., New York

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Among the institutions officially interested in the magazine and cooperating in its publication are Teachers College, Columbia University; University of Minnesota and Yale University.

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...the waterfalls in
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Here are more and higher waterfalls than in any equal area on earth. See them early this summer, and take a week's Yosemite vacation!

Free stop-overs at Merced, Calif., for the short, scenic side-trip. Accommodations range from $1.50 a day, housekeeping, to the colorful Ahwahnee, California's finest resort hotel, at $12 upward, American Plan. Ask your travel agent, or write Yosemite Park and Curry Co., Yosemite National Park, Calif.

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AMERICA'S GREATEST FAMILY RESORT
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Editor for full details of these trips and work out a land and water summer vacation second to none.

* * *

Golf has become one of the essentials to a summer vacation for many and in this direction the New England resorts are well prepared. In some of the more mountainous sections the ever-hopeful wielder of the mashie and putter will find sporty layouts that test his art, or, if he or she prefers a more level course, it is there. If your golfing vacation problems are not yet solved let us help you out with some suggestions for New England.

* * *

In considering the outstanding recreational possibilities of the New England States, however, one is apt to lose sight of the great attraction of its historic spots. Lexington and Concord, Plymouth and Provincetown, Hartford and New Haven, Providence and Newport,—these and many more combine beauty of scenic charm with associations intertwined with our national history. The visitor to New England, whether he goes by motor or by rail, should inform himself in advance of these points of delightful interest.

* * *

In Cape Cod and the Berkshires, Massachusetts has recreational areas of supreme lure to the vacationist. Thousands journey to Cape Cod from all parts of the United States every year and once they have gone there it is to return again and again. Along the North Shore,—that coast north of Boston,—are many more fine resorts. There is an individual charm to the Berkshires and one of the most beautiful motor trips in the world is that over the lovely and historic Mohawk Trail.

* * *

Rhode Island and Connecticut offer their ragged shore lines to many summer visitors every year and exchange vacationists with their near neighbor, the far end of Long Island.

* * *

Of particular interest to New Englanders, who know of their own country, is the Nature Magazine Tour to Glacier National Park. This has been announced in the two preceding issues and further announcements will be found in the advertising columns of this issue. Full details and itinerary will be sent on request.

* * *

All Motor Roads Lead To
Bretton Woods
White Mountains
NEW HAMPSHIRE
FAMOUS FOR GOLF Two Courses
The Mount Pleasant
Opens June 27th
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Opens July 3rd
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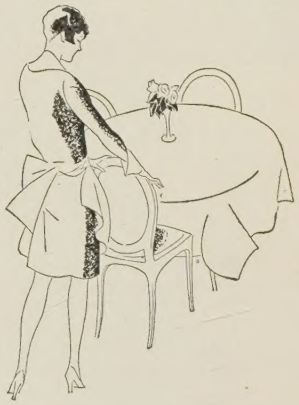
YOU HAVE YOUR OWN *Table*
AND YOUR OWN *Waitress*



SHE knows you. She knows your likes and dislikes, the time you usually have your dinner. And she knows how to serve delicious food as it *should* be served . . . for months of careful training have seen to that. You'll like your own waitress.

And you'll like the foods she serves you, too. The green, fresh vegetables come right from the farm, with fruits and meats and milk and butter. And here in the spotless kitchens—kitchens you can explore any time you want to!—those foods are prepared by cooks who are really masters.

After dinner? There are any number of pleasant and inviting ways to spend your time . . . watch the sea from the Ocean Deck, play in the game room, talk with friendly and cultivated people. For such people have found Chalfonte-Haddon Hall much to their liking. They appreciate the little courtesies of the men and women who work here. They like the sunshiny, airy rooms; they respect the absence of any pose or affectation. They feel at home . . . and they *are* at home.

* * *

There are complete garage facilities at Chalfonte-Haddon Hall. . . . May we send you a descriptive booklet further describing the hotel?

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American Plan
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All who have seen the Finley pictures in the past will agree that these pictures are the best yet.

An ideal feature for the winter program of Hunting and Fishing Clubs, City Clubs, Nature Clubs; and absolutely unique as a private entertainment.

WONDERFUL LECTURE *on* WILD LIFE

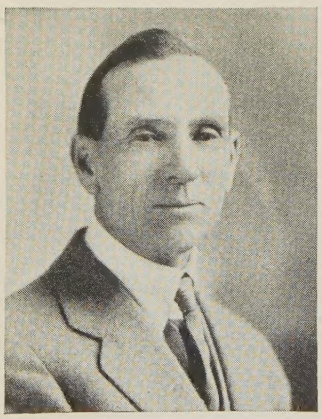
Camera Hunting on the Continental Divide With Thrilling Moving Pictures by WILLIAM L. FINLEY Famous Explorer and Lecturer

who made these remarkable pictures on the two recent Pack-Finley expeditions into the northern part of the Rocky Mountains, under the auspices of the American Nature Association, will lecture with them personally during the coming season of 1930

You who have read the story of the expedition, appearing in Nature Magazine during 1928 and again in the recent 1929 issues, will be more than ever eager to see these pictures and hear Mr. Finley. Rocky Mountain Goats—outwitted by the use of a goat disguise, photographed within 50 feet. Moose—that threatened the cameraman, and at one time came too close for his comfort. Beaver—photographed in the wild, cutting branches and building a dam. Bighorn Sheep—high up on the mountain passes. Pronghorn Antelope—photographed from a pursuing automobile travelling at 45 miles an hour. Herd of Elk—fording a river. Bears—raiding the camp. Conies, deer, marmots, ptarmigan, jays, Franklin grouse or fool-hens, and other birds of the high peaks.

Dates for the coming season should be arranged as soon as possible by addressing

EXTENSION DEPARTMENT, AMERICAN NATURE ASSOCIATION
15 BOUDINOT STREET, PRINCETON, N. J.



ENTERTAINMENTS
by
Captain Hugh Voorhies

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The Wonders and Beauties of Nature
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True Narratives Concerning the Human Side of Birds, Insects, Mammals and Plants
Subjects Illustrated in Original Water Color Paintings
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STORIES and MELODIES of the OLD PLANTATION DAYS

American Nature Association
15 Boudinot Street Princeton, N. J.

CAMERA TROPHIES
1929

Speaking of ADVENTURES

we were bent on taking motion pictures of those wild red foxes 'way over back of farmer Alvord's place, but what a battle of wits we got into! The old lady moved her cubs three times. Twice we were able to follow—then she lost us. Two weeks of work and 180 feet of film—but what films!

Then I perched three hours 60 feet up a sugar maple, concealed under my "magic carpet" blind, and took rarest shot of red-tailed hawk arriving home, mouse dangling from her beak like a princess's earring!

Also this season, up in Nova Scotia, I captured the shy minister gull on my motion picture film, and intimate camera interviews have I had with the osprey.

These *trophies* will be added to the already rich material included in my illustrated platform lecture—*Wild Life Adventures*—a favorite among schools and, I am told an inspiration to students and teachers alike.

There are other subjects, too, including *Cruising the Canadian Labrador*, a pictorial story about the now famous Greenley Island country.

Let me send you an illustrated circular.

HOWARD H. CLEAVES

AMERICAN NATURE ASSOCIATION
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Mr. Caldwell Photographing the Grand Canyon

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Illustrated with hand painted slides, motion pictures and autochrome plates (direct color-photography)

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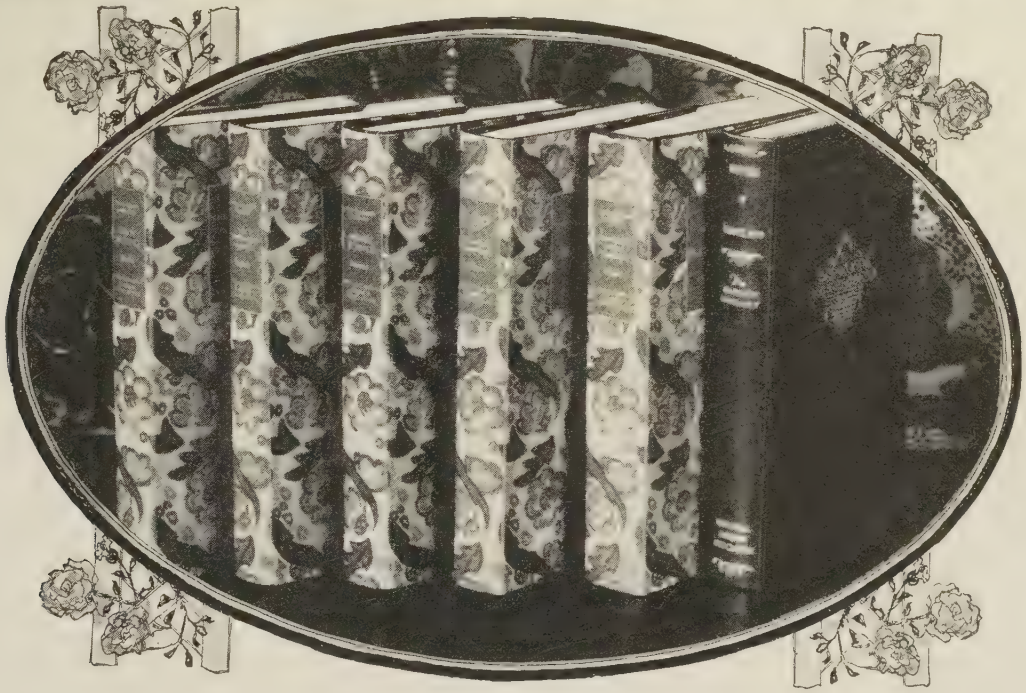
1. Wild Life in the Rockies.
2. Bird Songs and Wild Flowers.
3. Trees—Beauty, care, conservation.
4. Autochrome Studies of the West.

A recital of bird and animal calls precedes the lectures—135 programs given last season. "The most beautiful program we have ever had" is the usual comment.

During the summer Mr. Caldwell conducts nature camps for boys and for women in the Rocky Mountain National Park, Colo. Ask for folders.

AMERICAN NATURE ASSOCIATION
15 Boudinot St. Princeton, N. J.

Let Experts Help You With Your Garden—*One Year Free*



FROM the moment you mail the coupon in the corner of this page your gardening problems are solved. Every question you can possibly ask will be answered; every move you plan to make can be discussed exhaustively with the greatest garden authorities in America.

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NATIONAL PARKS WIN

A new era in national parkdom dawned on the dark, lowery morning of March 4, when Calvin Coolidge, delaying the automobile that was to take him to the inauguration of his successor, Herbert Hoover, performed one of his last official acts by signing the Interior Department Appropriation Bill, and committed the government definitely to the policy of extinction of private lands in the national parks.

The measure, over which raged a four-month struggle between House and Senate, fulfills the hopes of the American Nature Association members and others who fought to pass it. It will remove for all time, if properly administered, the bugaboo of the axe, the hot dog stand and the real estate development from the national parks by paving the way for government purchase.

The 8,500 acre tract of Yosemite Park timber, now privately owned, will be saved under the terms of the act, and the $1,000,000 privately donated by public-spirited citizens can be utilized at once. The bill provides $250,000 immediately, and guarantees sums up to $2,750,000 to match gifts as they are made. It contains a clause authorizing condemnation by the Secretary of the Interior, wherever necessary, on all tracts not utilized for religious or residential purposes.

The American Nature Association is grateful to the friends, in organizations or as individuals, and particularly to the press, for the support which enabled the measure to overcome certain legislative resistance.

The National Park Service now will concentrate on securing lands, and raising the $2,000,000 more needed to complete the $6,000,000 program and match government guarantees. Relative to the measure, Director Horace M. Albright states:

"The National Park Service is deeply grateful to its friends in and out of Congress who supported this recent legislation, the most important since the enactment of the Park Service act itself.

"The Yosemite sugar and yellow pine forests can now be saved.

"The legislative victory achieved in the closing days of the 70th Congress through adoption of the Cramton provision commits the Federal Government to extinguishment of private holdings in national parks, through condemnation if necessary, and makes financial arrangements for purchase.

"The immediate effect of this wide and far-reaching enactment is to lay the foundation for saving the fine forests of Yosemite National Park which have been in jeopardy for years. So far as Congress is concerned the Yosemite conservation program was completed by the last-minute and quite spectacular passage of the Englebright-Johnson bill authorizing a 9000-acre addition to the Yosemite timber holdings. This bill was introduced on February 21 and was a law on March 3.

"Our task now is to interest men and women of wealth and public spirit in providing the remaining $2,000,000 necessary to fully carry out the plan for public acquisition of private lands. A generous participation in this financial policy and a reasonable attitude on the part of the owners of the timber will result in quickly passing ownership of Yosemite's primeval forests and private lands in other parks to the American people to be held forever.

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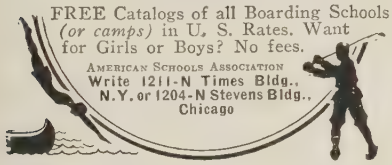

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Livingstone's Tree

An interesting newspaper discussion has recently been going on at Bulawayo, South Africa, as to whether the "Livingstone Tree" on Livingstone Island, Victoria Falls, is still standing. On the trunk of this tree the explorer cut his initials and the date, 1855, saying in his diary that he did so and that it "was the only instance in which I indulged in this piece of vanity." The discussion appears to have established that this tree is still standing, although a block on which the initials appeared was cut out and is now in the British Museum in London. Also it appears that there is another Livingstone Tree near the hut in which he died and on which native attendants cut their master's name and their own. There is a third tree sometimes confused with the other two, but known as the "Big Tree." It stands on the reserved camping ground for tourists on the south bank of the Zambesi near Victoria Falls. These three trees are worthy a visit by those who go to South Africa. The whole controversy arose over the penchant for visitors to cut initials, a practise from which the world does not seem to be able to recover.

Iowa Ornithologists

Growth of the Iowa Ornithologists Union has been so rapid and State-wide that the organization has felt it advisable to establish a bulletin to be issued quarterly at the start, at least, as a means to passing on the observations of the members from one to another. The first issue, dated February, contains many interesting notes. Iowans not already acquainted with the Union should by all means get in touch with fellow bird lovers by writing to Dr. F. L. R. Roberts, Spirit Lake, Iowa.

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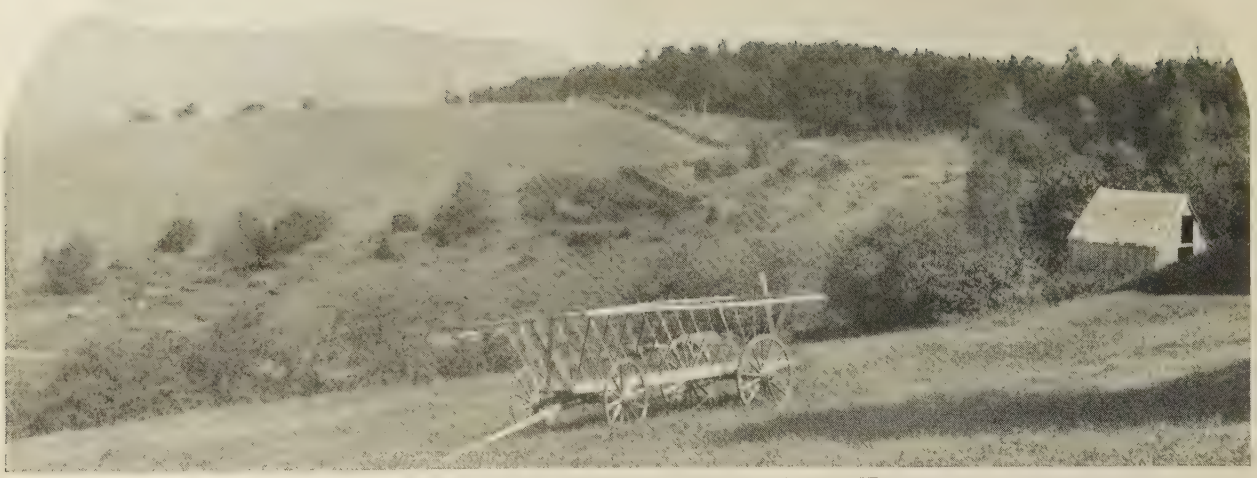

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Chocórua

by Edward A. Preble

Chocórua, guarding with your trident the gateway to the realm of your greater brethren—Greeting:

In the dim past mighty glaciers from the north overrode your crest but could not subdue you; they scoured your sides, and left on your summit huge boulders that in their grasp were mere sand-grains; these you have preserved through the ages, that we might view them, and marvel at their placement.

Bearing the name of the stern warrior whose hunting grounds lay on your flanks and who bravely met death on your brow, girt by those rugged peaks named for his brother chiefs of native blood, monument to that scholar who loved and recorded your beauties, your proud head surveys a scene beyond the power of words to paint. From your summit spreads a round of everlasting peaks, their sides green with verdure, their heads bathed in fleecy clouds, and nurturing in their valleys a hundred azure lakes. Everywhere are peace and contentment.

When the Great Ice retreated, plants of the Arctic found on your crags the home they craved. There they still linger, linking the present with the past. In the forests that clothe your base, birds of milder zones praise your Architect; on your summit singers of the subarctic raise their hymns to Heaven.

When the plants that fringe your base are blossoming and ripening their seeds, their sisters on your summit are scarce unfolding their leaves to the light. Thus does summer creep up your slopes; thus with your verdure do you link spring with autumn. About your tempered base rise century-old giants of the forest; on your wind-lashed peaks sprawl their still older brethren that the stern elements have dwarfed, but could not overcome.

We who delve in the valleys do well to contemplate your grandeur, and at times climb your rugged slopes, for thus shall we lift ourselves nearer to God.

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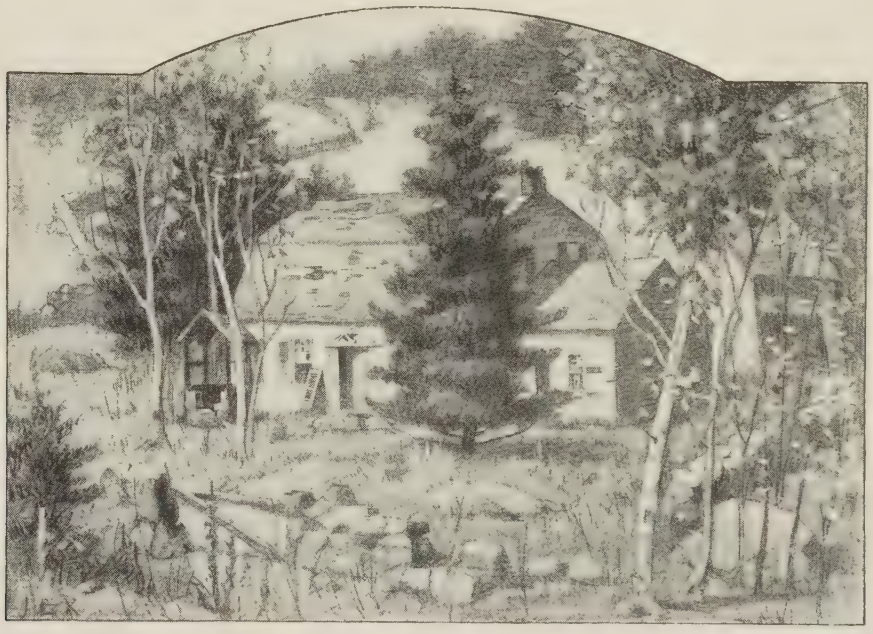
May, 1929



"I LOVE THE SIGHT OF SUCH A FARM,—THE RUINED HOUSE, THE BROKEN WALLS . . ."

The ABANDONED FARM

A New England Allegory

by Dallas Lore Sharp

Illustrated by Garnet W. Jex

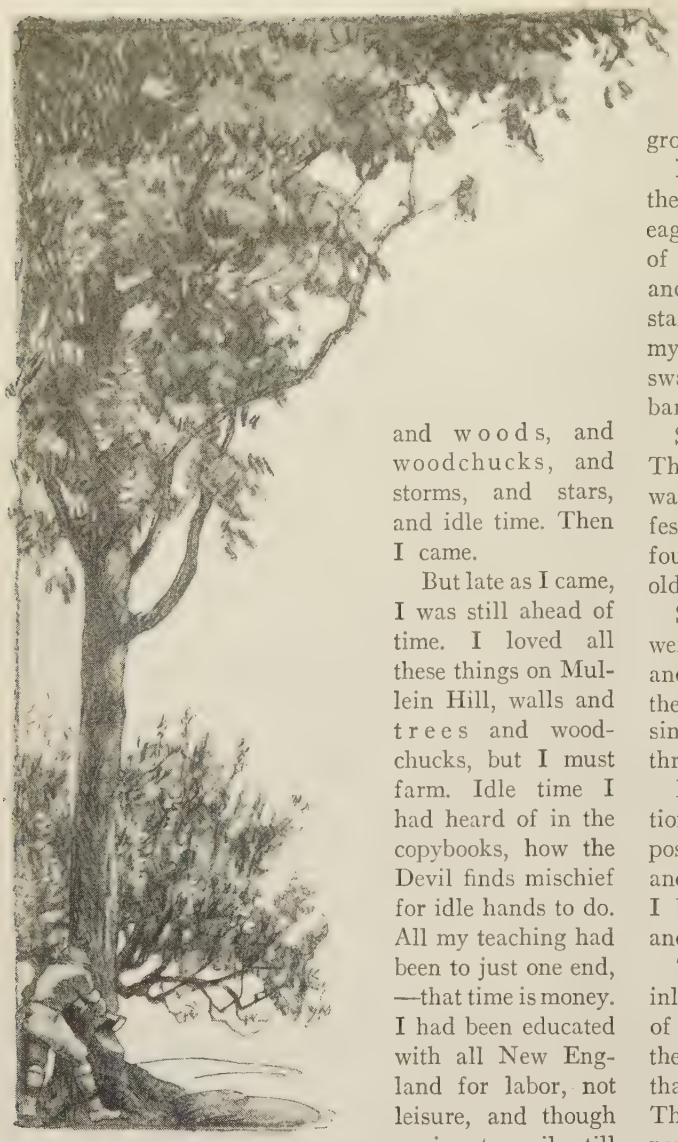
THE TREES were marching hard on Mullein Hill when I first climbed to the top of it thirty years ago. I was younger then, by some thirty years, according to the foolish actuary, tapered swiftly from my shoulders, and swung a loud-hallooing ax. I had a mower's back, too, in those days, stood straight, held the heel of the scythe close to my own heel, and laid the swishing herdsgrass in half-circles as even on the swath as lie the coverts on a linnet's wing.

No wild thing found quarter in my meadow then, nor in my mowing field behind the barn. I trimmed the squared corners of the fences, cut and cured the soft fescue, the spearmint, and the blue forget-me-nots in the bottom of the ditches, even making hay out along the dusty, ferny roadside, so empty grew the big barn loft before the spring.

Those were lusty days. I went forth with them singing—

> My ax shall clear the woodlands,
> The furrow trail my plow;
> A man of sons and acres I,
> Acres enow!

I had a crow-bar as well as an ax and scythe, and in my hand that heavy iron bar sang, or rather hummed, a tuning fork, giving the pitch to life. I was enacting the old eager drama of New England life. For I had possessed me of a stony hilltop, which God had apparently overlooked when preparing this country for farmers. No, God overlooks nothing. It is only the people of Hingham and New England who do that. God never intended Mullein Hill, nor much else of New England, for farmers, having made Iowa and the Mississippi Valley for them. He piled Mullein Hill with boulders, and set it with pine and ash and hickory, expecting some one to live there who loved stone walls.



and woods, and woodchucks, and storms, and stars, and idle time. Then I came.

But late as I came, I was still ahead of time. I loved all these things on Mullein Hill, walls and trees and woodchucks, but I must farm. Idle time I had heard of in the copybooks, how the Devil finds mischief for idle hands to do. All my teaching had been to just one end, —that time is money. I had been educated with all New England for labor, not leisure, and though an inapt pupil, still I must make Mullein Hill pay. God, again, never meant Mullein Hill to pay, as I might have seen had I been instructed less in business which shapes our present ends, and more in the eternal beauty of boulders and birds and stars which shape our eternal ends.

So, like every New Englander, I took over Mullein Hill with ax and scythe and crowbar and honest six per cent intentions. I loved the beauty of it all, but I must make money. So I cut the trees and built a stone-boat. The great rocks in the meadow, around which I might have trimmed with my scythe, I split to make room for more hay and a mowing machine. A scythe is pure poetry, but pure poetry is very poor pay. I pried out the boulders from the garden for more beans, and built the stone walls higher against the woodchucks for more beans. I was bent on beans. What else but beans had New England lived on except salt codfish?

When I took over the Hill there stood a magnificent hickory hard by an ancient apple tree. It was a useless, pignut hickory, loved only by the squirrels, and a pair of screech owls who nested in its lofty hollow. I wondered that the farmer before me had ever allowed the towering thing to overtop and dwarf the bent and untrimmed apple. But things like this had been happening all over the place, and now for years all over New England. It was not a good spot for an apple tree, though a perfect spot for a hickory tree. And why not the hickory where the apple will not grow? Do men gather figs of thistles?

But I fell upon the hickory. I brought it down while the little screech owls were still brooding their eggs, so eager was I to make the apple tree pay. As if a brood of owls were not as worth while in this world of mice and men as a bushel of apples! But I did not understand such values then. I can still feel the twang of my taut-strung nerves as that magnificent hickory swayed and toppled, and came crashing, as so much barbaric music through my soul.

Soon after that the miserable apple tree blew down. The stump of the great hickory, a rotting nest of fungus, was never healed by the years, and has never ceased to fester in the field. But the owls hung about and soon found another hole, this time in one of the remaining old apple trees.

So the war on Mullein Hill began, and for years went on. Marching and countermarching, we fought up and down, and over the top of the Hill, the stones and the trees laying siege to the place, as they had done since the white farmer had dispossessed the red man three hundred years ago.

Meantime they constantly strengthened their positions, extending their lines, pushing forward their outposts, digging-in closer and closer to the sagging fences and the unfinished walls. And I was busy on my lines. I bought more axes, as I drafted son after son, in ancient New England farmer fashion.

The embattled farmers of New England found this inland, upland country of theirs in a magnificent stand of hardwood forest mostly. From about 1700 to 1740 they cut off and conquered about seven million acres of that forest and turned the vast area into pasture land. This went on until 1820, when the tide turned, and the period of retreat began. The farmers abandoned their stony, stumpy pastures, and the forest came back, a green-bannered gloriously victorious host of white pines that repossessed three-quarters of the cleared land. Then the lumbermen took the field with ax and portable mill, and twelve billion feet of white pine lumber fell in the forty years fray. And then it was no-man's land.

The primeval forest had fallen back and had given place to the pasture, wall, and plow. Then after two generations the pastures failed and the pines came in and conquered wall and plow. Then the pines fell, and now for more than a generation a scrub growth of forest, pin-cherry, gray birch, wild apple, "popple," and alder—weed trees—have been sweeping over five millions of these seven millions of acres of what was once a primeval forest of beech and birch and oak and maple, then pasture, then pine. Then I, and multitudes of city workers like me, arrived, and a new fight began.

Soon one by one my lieutenants, their terms expiring, left the army. They did not desert, but they did go quickly, long before the battle was won. There were traitors, however, in my camp. One night the horse galloped off, as up the Hill chugged a motor car, with no appetite for herdsgrass. Then the cow died, leaving me no apparatus for stripping the meadow of its curds and

whey. We parted with the pig because the children, when they quit camp, carried off the bean-pot. The hung-up scythe rusted. But not the ax. I kept a keen blade on the ax, for the pair of us left on the hilltop needed warmer and brighter camp-fires. Then one day the boulder walls combined against my back, and left me with a permanent kink in the small of it, and a flag of truce in my hand in place of the crowbar, when I ventured again among the stones.

And the trees kept marching down on Mullein Hill, no break in their columns, no gap in their advancing front. With banners flying in the summer, with sound of fife and drum in winter, they came swarming across the pasture, pushing into the mowing field, edging about the garden, planting a sentinel in the orchard, and even posting one, now a twelve-year-old pine, at the turn of the driveway between the wheel-track and the retaining wall.

The garden still holds out, but terribly reduced and hard put to it, standing off the hickory, red oak, ash, gray birch and pine. I plow and slash with bill-hook about the shrinking margins, pull up and burn the seedlings; but who can handle thirty-five acres of advancing trees single handed? And what's the use of growing bushels of beans for just two of us when a single pot of them, baked on Saturday, lasts us till the next Saturday brings bean-day back once more? We can't live on beans alone, though we are only seventeen miles from Boston.

And this is cone-year for the pines! And every year is seed year for the ash and birch and pignut hickory. The squirrels have planted enough pignuts on the top of Mullein Hill this fall to stock the Commonwealth with the hickory trees. And what have the winds been doing with the white pine nutlets? Mullein Hill is hardly more than a recruiting ground for coming armies of pine. Then add to them the spring sowing of red maples, tens of thousands of seedlings, already through the ground. If for a moment I turn and flee Mullein Hill is lost, fallen before the marching trees.

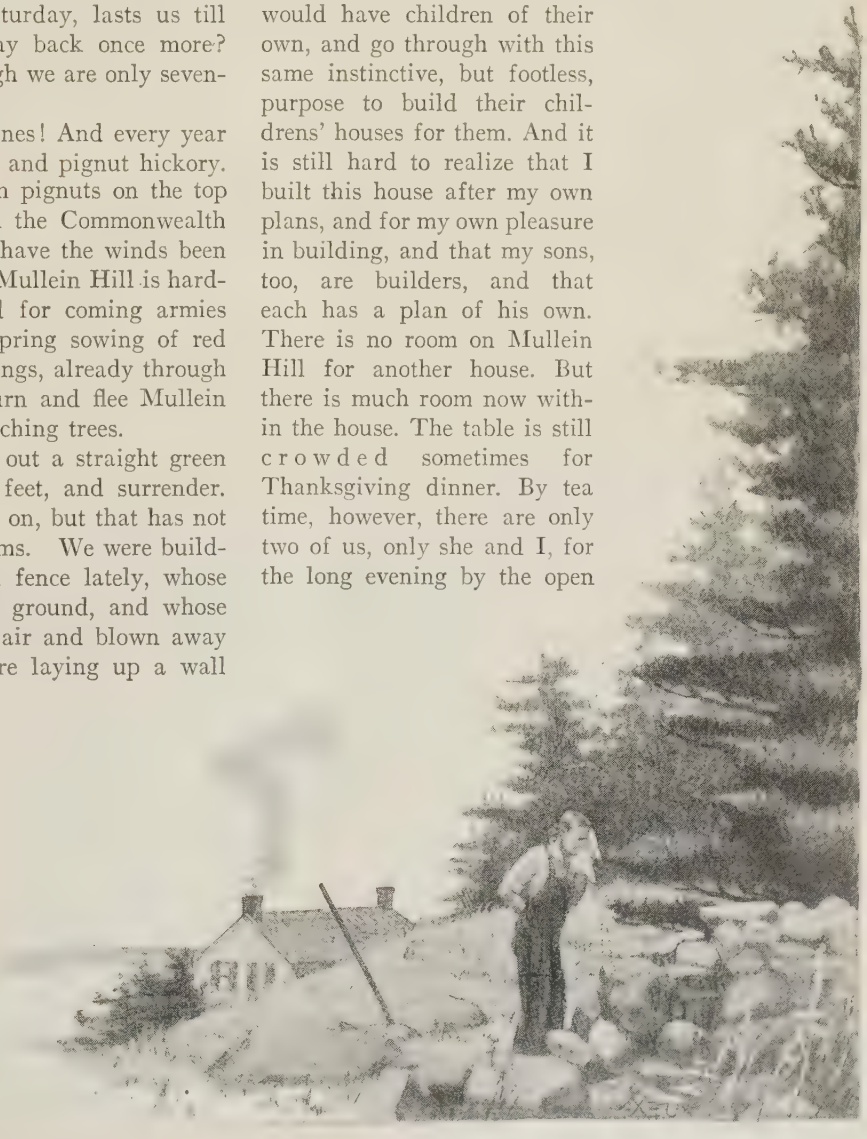
One of these days I shall pick out a straight green sapling, lay my dulled ax at its feet, and surrender. Perhaps one of the boys will carry on, but that has not been the way on New England farms. We were building over an old two-rail-and-wall fence lately, whose red-cedar posts had rotted in the ground, and whose strands of wire had rotted in the air and blown away as so much ferrous dust. We were laying up a wall that would never blow away, no stone of which the deepest frosts would ever heave, that Time could never touch except with gray-green lichen, softening, but not with decay.

Because the glaciated rocks seemed to belong to each other in the wall, and because the wall seemed to belong to the landscape, we mated stone with stone as if they had hearts and arms, and were being joined together in a kind of holy wedlock until another ice-age should break their union and rebuild them into another world. We were building a wall, but no barrier, the cattle having long since strayed away from the pasture. We did not rebuild the bars, but threw dooryard and pasture into a commons where there should henceforth be neither tame nor wild.

Pausing to ease the strain at the kink in my back I said to the lad, "Look at the young cedars there in the pasture! Posts enough coming on there for eternal fences if the stones should fail. And I suppose you are here to build the fences if they ever fall. Have you ever thought of keeping Mullein Hill when I am gone?"

The lad gazed out over the knoll, and down into the shadowy woods with tenderness, but without desire. It was a familiar and a beautiful scene. It had mothered him, and he loved it as he loved his mother. But there are other loves. And he was dreaming already of other hills, higher, and far away, and of one in particular which he would possess. Thus ever with New England lads. I had laid my hand upon his strong, square shoulder as I unbent and came slowly up. Now he drew off a little, and we stood looking out over the pasture, each of us standing alone.

I had often thought that I was building for my children, forgetting that they would have children of their own, and go through with this same instinctive, but footless, purpose to build their childrens' houses for them. And it is still hard to realize that I built this house after my own plans, and for my own pleasure in building, and that my sons, too, are builders, and that each has a plan of his own. There is no room on Mullein Hill for another house. But there is much room now within the house. The table is still crowded sometimes for Thanksgiving dinner. By tea time, however, there are only two of us, only she and I, for the long evening by the open



fire. Outside is the old November wind in the leafless trees. There may be a spatter of gusty rain against the windows. Up in the tower of the house we are likely to hear the whimper of the little owl.

Owl, and rain, and talk of wind in the dark, are all wild voices that have become insistent now, since the laughing children went away, and more constant, and more easily understood. Wild, but not fearsome. They were here, as I remember, before the children came. Only we were too noisy then ourselves to hear them, or too busy to listen, or too care-free to care. But they have dwelt here always, and will not go far away, nor be driven away for long. They will come back and stay when I am gone. More constant than my children, it may be that they are closer, too, and as kindly, dust of my dust, all of us in the same warm bosom of the mothering earth.

So I am drawn toward the conquering trees. More and more I feel the pull of the earth. The very house in which I live seems to feel it too. The fluttering ampelopsis which settled over its rough walls like a flock of birds in summer, has been stripped of leaf and even of leaf-stalk by the autumn gales, only to reveal the gripping network of clinging strands, like some million-fingered hand laid on the stucco to pull the proud walls back to their final mound in the soil.

If I had life to live over again I think I should not make war upon the invincible trees and boulders, nor build a house for my children. Rather I would come among the trees with a flag of truce, and build a little cabin for myself, and pitch tents for the children, a tent for a child, so that he could strike it and depart to build his own cabin on a rocky hill among the peaceful trees, unless, as is more likely, he rented him an apartment among the hosts of the plains.

So let the trees march across what soon may be another abandoned farm. Nature is always ready to take them over, and I would yield my place to no less noble a foe, nor could I perish in a spot more loved. But do I speak as if this hill-top life had been one unceasing warfare with Nature? Far from it. If at first I fought with ax and plow and crow-bar it was because I loved a fight and knew no better way. I was possessor first. Then I became partner. Now I have become a mere squatter on the Hill, a camper, glad of my fire, and the smell of the smoke beneath the overshadowing, protecting trees, content if I could camp forever here under the quiet pines.

So it has always been with man and Nature, but seldom with so many men, over so vast an expanse of Nature, as among the New England abandoned farms.

I love the sight of such a farm—the ruined house, the broken walls, the weary, worn-out fields grown suddenly young again, alive and lusty with leaping, singing pines! Everywhere signs of past defeat and present victory.

Across the meadow from the hilltop stands a large grove of such pines, now tall and sweetly somber with more than fifty years of life. Within their glooms can still be seen the heave and hollow of the plow. Patches of brake and goldthread and wild lily-of-the-valley are green against the heavy layer of brown leafmould, the fallen needles and the softly carpeting shadows so deeply silent that one can almost hear the falling of a moonbeam through the trees.

One autumn many years ago, the scrawny corn was not cut and shocked in that farmed field. And it was seed year again for the few big pines over on the rocky ridge beyond. That winter the old farmer died in the house beside the brook; or that was the winter that the old man's sons enlisted for the Civil War; or did they marry that winter and leave the farm for a factory in the village on the railroad, some dozen miles away? The following spring that field went fallow, so the pines took it, and have held it ever since.

There are many feet of good box-lumber in that stand of straight-bolled pines. But I hope the ax holds off, for there are other, greater values than lumber in that deep-aisled, murmuring grove. Besides, that stump land never was intended for the plow. And what a pity to scatter the solemn shadows and lay waste the cathedral trees if by any chance the old farmer should lie sleeping there! But if they must be felled, then the hard woods will take their place. The thick, undecaying layer of acid leafmould will give place to friable, swift-rotting maple, beech, hickory and ash leaves, which will neutralize the acid soil, let the earthworms return and the woodcock—a vanishing bird in some parts of New England, a lover of the hardwoods, but one who cannot live along the unlighted aisles of the pines.

More New England than New England itself are the verses of Robert Frost, the philosopher and poet of the six states, revered by all who know him. No New England issue would be complete without him, and we thank the poet himself and his publishers, Henry Holt and Sons, for the reprinting of:

A VANTAGE POINT

If tired of trees, I seek again mankind,
Well I know where to hie me—in the dawn,
To a slope where the cattle keep the lawn.
There amid lolling juniper reclined,
Myself unseen, I see in white defined
Far off the homes of men, and farther still,
The graves of men on an opposing hill,
Living or dead, whichever are most to mind.
And if by noon I have too much of these,
I have but to turn on my arm, and lo,
The sunburned hillside sets my face aglow
My breathing shakes the bluet like a breeze,
I smell the earth, I smell the bruised plant,
I look into the crater of the ant.

THE NATIONAL FLOWER VOTE

TABULATION of the vote in the National Flower Poll on March 15 showed a total vote cast for 92 different flower candidates of 115,011. The violet passed the phlox to go into fourth place and the goldenrod gained on the columbine with the wild rose in the fore. The votes thus far cast for the leaders stood on March 15:

WILD ROSE 43,527	PHLOX 8,011	ROSE 2,645
COLUMBINE 19,315	DAISY 3,977	LAUREL 2,036
GOLDENROD 13,510	DOGWOOD 3,622	BLUEBONNET 1,097
VIOLET 10,489	AMERICAN BEAUTY	SUNFLOWER 966

COURTESY BOSTON AND MAINE RAILROAD

SCENERY—FOREST—WATER POWER

The chief natural resources of present-day New England are seen from near the summit of Mt. Washington, looking down on the Androscoggin Valley

New England Through The Ages

Nature's Part in Its History

by James W. Goldthwait

Professor of Geology, Dartmouth College

HISTORIC New England already contained Nature's records of the past through acons of change when the earliest explorers and colonists reached its shores. What Nature had written upon its surface through the ages had more than a little to do with events of those early days; and it has ever continued to affect the material development of the land and the traits and habits of its people.

The first landmarks noted by those venturesome English and French navigators, at the opening of the 17th century, were the ice-worn granite domes of Mount Desert, the spruce crowned cliffs of Monhegan, and the tapering peninsulas of Pemaquid and Newagen,—outposts of the ragged coast of Maine. The sheltering bays of the Penobscot and the Kennebec, valleys that had survived the wear and tear of an Ice Age only to become half drowned by the subsequent rise of sea level,—these gave easy access to an interior where fur trade promised to supplement the wealth of fishing grounds close at hand and bring variety.

THE FALLS AT WATERVILLE, MAINE, UTILIZED FOR MAN

D. WARREN BOYER

The down-cutting Kennebec struck bed rock beneath glacial drift

THE FLUME AT FRANCONIA NOTCH

A mountain torrent has sawed this out

COURTESY, GEO. SLADE AND MANCHESTER, N. H. CHAMBER OF COMMERCE

A NEW HAMPSHIRE SHOW PLACE

Hundreds of thousands have passed through it

Unless one bears in mind that the first colonists sought scarcely more than a foothold in Maine, he may wonder what freak of judgment led George Popham's band, in 1607, to lay out a village on the little patch of tillable ground behind Popham Beach, at the Kennebec entrance. A sightly place it was, indeed; but what a bleak spot for the planting of a new country! A wide tide-swept expanse of mud on the north, an eddying salty river on the east, the storm tossed ocean on the south, and thinly mantled, glacier-scrubbed slopes of rock rising close on the west. To be sure, it was accessible to any ship that might come over from the homeland with supplies, news, and encouragement; its very isolation made the peninsula relatively easy to defend, if need be; its guns commanded the mouth of the Kennebec; the supply of bird, beast and fish was indeed almost inexhaustible; and the "savages" were friendly if fairly treated—yet can we wonder, after all, at the disillusionment expressed by the survivors of that first winter when they recrossed the Atlantic and reported that this country was "not inhabitable by our English nation"?

Again in 1620, when the little Mayflower passed around the beckoning sandspit of Provincetown, and soon set its passengers ashore on Plymouth beach, Nature's record was there,—a glacial boulder was their threshold. But not all that it typified was providential. The unexpected sterility of the soil and the rigors of a New England winter almost drove the colony to a more favorable site.

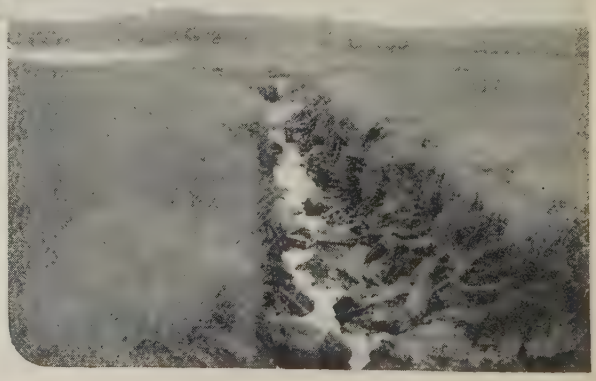
Intensive colonization set in around Massachusetts Bay under the régime of stern Puritanism. A stony upland soil was their garden. Crops came hard. One may say that only men with Puritan standards of duty could subdue such soil; but on the other hand it is obvious that their contact with it, through plough and ox team, generation after generation, helped to make the colonial farmer a Puritan,—hardy, thrifty, keen of conscience and rather uncompromising. Glacial boulder clay ploughed over and harrowed, glacial fieldstone gathered up and put into walls, a new crop of it each year,—these familiar elements of the hillside farm had their inevitable influence for a century and a half, while rural population spread far inland and climbed hills to their summits. Then, as richer soils and smoother slopes of prairie states commenced to drain New England of

THE BARTLETT BOULDER

Set up like an automobile on four wheels by the Ice Sheet. Below are crumpled strata on Mt. Washington

A DROWNED FOREST

Dead tree stumps, hidden for centuries beneath salt marsh, reveal a part of the story of the past



its sturdy stock, and Yankee enterprise, schooled on difficult terrain, went pioneering westward, New England fell back upon another inheritance from the Ice Age,—its innumerable waterfalls and rapids. The shift from farm to factory was on. Presently Nature's influence seemed to weaken: the railway came in to upset the economic and social order, industry outgrew waterpower, and steam, the artificial substitute, took up the burden of civilization. Textiles were followed by a host of other forms of manufacturing; cities grew fast; and within them developed a world of finance that appeared to put Nature quite into the background. Man seemed about to become supreme. But now, again, New England has awakened to the value of its old heritage, waterpower. High tension lines are crossing the hills, to carry current generated at power sites which until now seemed too big to harness. Man has again taken Nature into partnership.

A. B. HUSSEY

CRAGS ON KATAHDIN

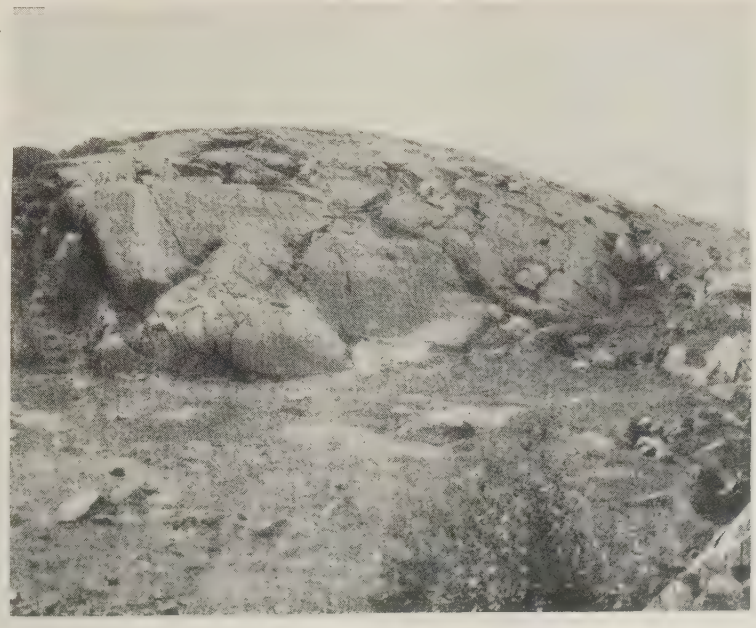
An ice sheet and a group of alpine glaciers were the sculptors of this masterpiece of Nature

The rocky framework of New England shows where rugged mountains long ago went to ruin. Strata that originated as beds of gravel, sand, mud, or lime, on the floor of the Paleozoic sea, "when the world was young", were then pressed, mashed and twisted into tight folds by earth shrinkage, so as to produce parallel belts of slate, quartzite, marble or schist. Their steep inclination and their tight crystalline texture show the prodigious pressure which they suffered in the flanks of these lofty old Appalachians. Through these obscurely bedded structures great masses of granite, as large as whole townships, and of great variety of grain and composition, were squeezed while hot and liquid, stiffening into solid rock while still far underground. Only through millions of years of decay and erosion has the thick rock cover been stripped from them, exposing them to the quarryman, at Westerly, Milford, Rockport, Barre, Concord, and Vinalhaven. With the granite came more fluid juices that made great veins of quartz, feldspar, and mica,—the excuse for many an old mine in the New England hills. Gem minerals like tourmaline, beryl, and topaz may come from these.

The strong northeast-southwest trend of the old mountain folds across New England causes a pronounced grain in the surface contour, for the slow forces of erosion have ever been fitting river systems to it. Highways, railways, and wires follow the grain rather definitely. Travel across it, from east to west, is comparatively difficult, but necessary in these days of land transportation.

During the middle ages of earth history, dinosaurs were making indelible three-toed footprints on the muddy floor of a wide basin, between New Haven and Greenfield. This old Connecticut valley probably resembled the Great Valley of California. Thick sheets of lava were poured out over it and thrust between the soft strata. At length, excessive strain on the earth's crust broke the basin into a mosaic of blocks, whose tops and edges, tilted in different directions, formed sharp cornered mountains. The modern trap-rock ridges that make the sharp serrate skyline from Holyoke, Mass., past Meriden, Conn., to New Haven, are only low remnants of what once was.

Rain and rivers had worn the whole region nearly flat by the end of the Mesozoic era. A monotonously smooth surface reached inland from the seacoast to the low rounded summits of the Green and White Mountains. Scraps of this old surface or "peneplain" remain today, on hilltops which streams left un-



MT. KEARSARGE

lifts its shining bald head in southern New Hampshire

NEW ENGLAND

was unmercifully scrubbed by the old ice sheet as it passed

touched when they carved valleys out from the uplifted mass, in later periods. "Monadnocks" like Blue Hill near Boston, Mt. Agamenticus back of Portland, and the bolder range on Mt. Desert, were mountains when the peneplain first formed, standing more or less alone above it. Although New England was repeatedly upwarped broadly and in places broken again by block faulting, it appears never to have become mountainous after the Mesozoic time. Weather and stream action held sway. Districts with weak structure, like the lower Connecticut valley, the Champlain valley, the Winnepesaukee basin and the Penobscot area were worn down to lowlands, and so remain. Just before the Ice Age the Connecticut River,—and probably other master streams,—had cut deep gorges down through their wide rock floors, in response to uplift. Though now deeply buried by glacial deposits, some of these gorges have been located and mapped by means of drilling records and electric soundings.

NATURE MAGAZINE TOURS TO GLACIER PARK

So great has been the response to the announcement of the Nature Magazine specially-conducted tour of Glacier National Park that two additional parties at least will be necessary. The first tour will leave Chicago on July 6, the second on July 20 and the third on August 10. Write the Travel Editor, Nature Magazine, for full tour details.

A mysterious wintry climate now settled down over the earth, and snowfields and ice sheets formed on North America. Slowly Canada was overspread from different centers. Soon New England became wrapped in one solid moving mass of ice, a part of the great Canadian sheet, which was thick enough to cover the Green Mountains, the White Mountains, Mt. Katahdin, and all the others. Around Mt. Washington it was at least a mile thick. If it came and went more than once, as in the Lakes region, there is no sure record of it here. Everywhere we find the marks of one great advance and one retreat, but with many oscillations of its margin that indicate climatic cycles. The direction of its slow rigid movement is marked by grooves and scratches on heavily scrubbed ledges, where sharp cornered blocks and stones were forced straight along, and also by the paths which these fragments took from ledge sources that can be identified. From Mt. Ascutney, at Windsor, Vt., rocks have been traced fifty miles into Massachusetts, and from Mt. Ossipee in central New Hampshire another type of rock can be followed across Maine to Wells Beach. Tracing the glacier by this means is not unlike a game of hare and hounds. A boulder train of iron ore extends from a little hill near Pawtucket southward over Rhode Island to the Sound. The movement over this section generally was seaward and rather steady, with less regard for topography than one would expect. All life was certainly blotted out of New England, for the ice completely covered it and lay with its outer margin in the sea and on Long Island. The hummocky line of hills that it heaped up as a terminal moraine crossed Nantucket, ending abruptly there. On Cape Cod is another prominent moraine; and farther north are small scattered deposits that mark short halts in the ice front during its final recession.

Rock waste dragged beneath the moving ice was largely ground to flour, pressed down and overridden, producing what is variously known as "boulder clay", "hard pan" or "till",—the common hillside soil of New England. Rocks and boulders occur everywhere where the glacier left them, except in those situations where waves or rivers or other modern agencies may have removed them. Granite areas were prolific with their supply of blocks and boulders, and so near them we find the thickest sprinkling. Most interesting, of course, are the "balanced rocks" and giant boulders, like the Madison boulder south of Conway, New Hampshire, which is nearly ninety feet long. These odd records should be treasured as monuments that never can be replaced.

Great arched hills of boulder clay called drumlins grew up beneath the ice. These usually appear in large clusters, like a school of whales or porpoises whose graceful backs corrugate the horizon. Boston was built on three such drumlins, but of them only Beacon Hill has survived city "improvement". Its somewhat altered skyline is less convincingly a drumlin profile than one may see on islands in the Harbor, where historic fortifications only slightly change Nature's lines.

When at length the climate became warmer and snows largely ceased, the ice sheet commenced to melt away both at its margin and over its entire surface. The edge retreated, melting, although forward motion of the mass seems generally to have kept up. Here and there the ice became stagnant. Rivers, issuing from tunnels at the glacier front, built eskers,—ridges of sand and gravel with steep sides, supported by ice walls. Many of New England's small town gravel pits occur in these, and some have furnished thousands of tons of material for concrete and road construction. Floods pouring down the valleys from the rotting ice built delta-like plains and terraces of great variety. In the Merrimac and Connecticut valleys, particularly, where a gentler southward gradient at that time allowed water to stand with only sluggish current, clouds of mud and silt settled to the floor in such a way as to make a banded deposit called "varved clay", that shows clearly successive seasons of summer and winter, and even registers differences in warmth of successive summers. Counting these and measuring them carefully, Dr. Ernst Antevs has been able to match sections at hundreds of different localities in New England, and by ingenious methods to work out the rate of recession of the ice edge from place to place, and the time taken by the retreat. It took 4,100 years for the ice to retreat from Hartford, Connecticut, to St. Johnsbury, Vermont, for example, and the average rate was 283 feet a year.

The departure of the ice removed pressure from the earth's crust, so the surface of New England bulged upward. It seems to have been a wave-like movement, which followed intermittently the receding ice edge northward, and was geologically fast, though slow as men measure changes. The interior came up much higher than the coast; but even that emerged in Maine, New Hampshire, and eastern Massachusetts. Beaches of

(Continued on page 339)

EDWARD VAN ALTENA

AMERICAN WOODCOCK ON HER NEST

One New England bird which merits more protection than it is getting if it is to survive

New England's Bird Guests

Whither They Go and Whence They Come when Seasons Call

by Edward Howe Forbush

THE fascinating mystery of migration long baffled the human mind, and its origin, lost in the dim vistas of the past, is still a subject of conjecture. In ancient times, though many fanciful theories and notions of the subject prevailed, the fact that birds migrate was well recognized. Jeremiah said: "Yea, the stork in the heaven knoweth her appointed times; and the turtle and the crane and the swallow observe the time of their coming." People ask many questions, some of them unanswerable, but fortunately we are able to answer some of the eager queries about the migration of the birds that come to us.

Beloved as a man and honored as a scientist, Edward Howe Forbush of Massachusetts passed away on March 8 after a brief illness. The achievements of a lifetime in his chosen field of ornithology will live after him, but the loss to the present is nevertheless great. This article was virtually his last piece of writing but its author never saw it in type since a proof was on its way to him at the moment of his passing. May it be as a memorial.

As the sun retires southward, as the autumn frosts begin to seal northern waters, the birds commence their long journey. From far northern lands, from northern Greenland and Ellesmere Land, from Arctic islands and shores, from the wildernesses and forbidding coasts of Ungava and Labrador, from the rocky barrens of Newfoundland, from central and eastern Canada, hosts of birds by different and converging routes reach the woods, fields and shores of New England, and many, pausing briefly there, go on and on,

PHOTOGRAPHS BY FRANK BOND

TWO OF OUR NEW ENGLAND BIRDS

At the left we have the junco, while on the right is the ever-charming bluebird

FRANCIS HARPER

A COMMON TERN ON HER NEST

Members of this bird family hold records for migratory flights

some to the Middle and Southern states, others to the Bahamas, the West Indies, Mexico, Central America and South America, while a few even reach the Antarctic seas. In spring they retrace their flight, stopping off for the summer wherever they find suitable conditions. Many of the older birds return to the very nests which they occupied in past summers. According to Cooke the longest regular migration is that of the Arctic tern, which passes annually from Arctic to Antarctic waters, a distance of 11,000 miles. That of the Wilson's petrel, however, is nearly as long, as it breeds on Antarctic islands during our winter, and spends its summer in the North Atlantic, ranging north to Labrador.

From these extremes of long distance migration, we may review those birds which have shorter migrations until we come to those that spend their whole lives in one section. Our well-known game birds, the bob-white and the ruffed grouse, are supposed to be non-migratory, but under certain circumstances they may leave the place of their nativity. A family of bob-whites, which had been banded for purposes of identification, were pursued by a cat, which caught several of their number. The rest left the neighborhood and were taken later in a nearby town. There is some evidence that ruffed grouse which breed on New England mountains up to the limit of trees retire in winter to thick cover in lowland swamps.

Regular migration is seasonal as a rule, and in New England, as in the rest of North America, its general tendency is northward in spring and southward in autumn. Nevertheless those who with a telescope have watched the night migrants crossing the disk of the full moon have noted that the lines of flight are not parallel, but cross one another, some veering far toward the east and some toward the west. Some birds, like the golden plover, come to New England in autumn from far northern and northwestern Canada but return in spring by way of the Mississippi valley region. Some, like the canvas-back duck, come almost directly east from the Great Plains.

L. W. BROWNELL

THE SCREECH OWL

A distinguished member of the owl family found in New England

The trapping and banding of birds, a comparatively new method in ornithology, has become popular in New England. The numbered bands, furnished by the Biological Survey at Washington, D. C., are marked in such a way that records of birds that are recaptured are returned. Many remarkable instances of what seem like unusual migrations have appeared in the records of the Survey. Among them are records of an evening grosbeak and a purple finch banded in autumn in Michigan and taken later in Massachusetts, and a slate-colored junco, which apparently bred in the Berkshires in Massachusetts and wintered on the Massachusetts coast. A robin banded in New England was taken in the winter in Kentucky. Some black-crowned night herons, banded as fledglings on Cape Cod, were taken in the following autumn in Maine, and several in

(Right) BROWN THRASHER WITH BAND ON LEG READY TO BE LIBERATED

At the left the red-headed woodpecker at a feeding station

Quebec, and one in New Brunswick nearly 500 miles north of the place where it was banded. Later others were taken, one in Michigan, two in southern Louisiana, and others south to the West Indies.

Something may be said in explanation of such apparently unusual flight lines. The presence of the evening grosbeak was virtually unknown in New England until the winter of 1889-90. Its winter migration regularly occurs between the Rocky Mountains and the Mississippi. In recent years, however, it has become common here in winter, coming from the west across the northern states, perhaps because of the general planting of the ash-leaved maple or "box elder", the seeds of which form a favorite food of the bird. In spring these grosbeaks return to the West, though a few may remain locally to summer in New England.

FRANCIS HARPER

MOTHER BLUEJAY ON HER NEST

However combative and strident in voice, always a lovely bird

The migration of purple finches and robins seems to be largely influenced by the supply of food. When winter berries are numerous in New England, many robins pass the winter in all these states.

The northward movement of herons after the breeding season is not new. For many years, if not always, egrets and little blue herons—birds which never were known to breed in New England—have appeared there annually after their breeding season in the South. This movement illustrates the tendency of birds, especially the young, to wander in autumn. Eventually, however, before winter sets in, those that survive join in the general southward movement.

FRANCIS HARPER

THE TREE SWALLOW

Another of the bird guests of New England, and a welcome one

Besides the apparently erratic migration of some species, there are lone, wandering birds, either lost or driven into unfamiliar territory by storms. There are single records in New England of species which range normally from the Rockies to the Pacific. Such are recent occurrences of Lewis's woodpecker and the golden-crowned sparrow. The Pacific golden plover which normally migrates down the coast of Asia and to the Hawaiian Islands, the cape pigeon or pintado petrel of the southern oceans, and a number of European species, have appeared in New England. Tropical or semi-tropical species have been taken in this territory, but all such occurrences are considered as accidental. Of course a bird having sufficient powers of flight can go anywhere, so long as its strength holds out. A tern banded in Maine was found dead in Africa; gulls banded in Europe have been taken on this side of the water, and an upland plover, a New England species, has been recorded in New Zealand. Such occurrences probably are the result of strong favoring gales, such as brought a great flight of lapwings from Europe to this country in 1927, when they were scattered along the coastal region from Baffin Land to Maine and attracted the attention of many.

Although the principal migratory movements occur in spring and fall, migration goes on in every month of the year. A thaw in January furnishes

(*Continued on page 340*)

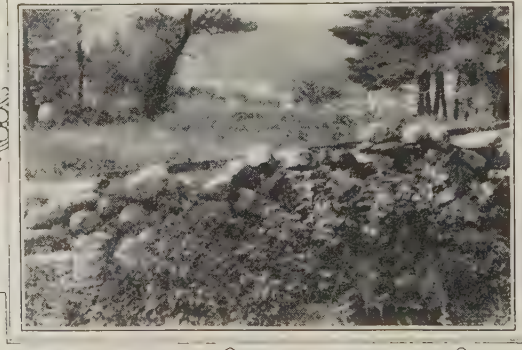
(*Left*) RED-BREASTED MERGANSERS FLYING OVER THE DECOYS

At the right the prolific and ubiquitous starling, an immigrant

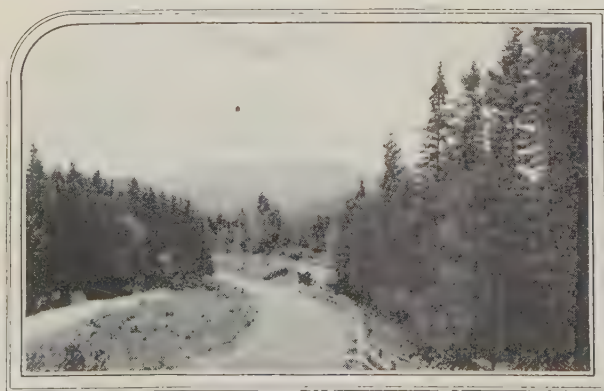
The Green Mountains from Bennington battlefield, a typical scene in the heart of old Vermont

(Below) By dropping your canoe into the Connecticut River here at Woodsville, New Hampshire, you can travel to the sea

Echo Lake nestles in famous Franconia Notch



Among the charms of New England farmlands are the stone fences that bound them

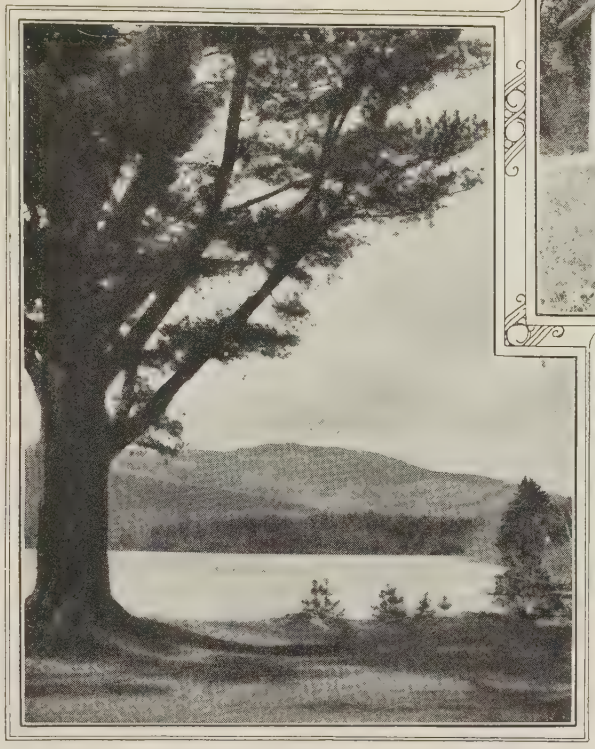


Along a White Mountain roadway with spires of evergreen on either side

The White River in Vermont, a rapid-dotted and crystal-clear stream

PUBLISHERS PHOTO SERVICE

The most painted mountain, perhaps, this side of Fujiyama—Mt. Monadnock, New Hampshire



D. WARREN BOYER

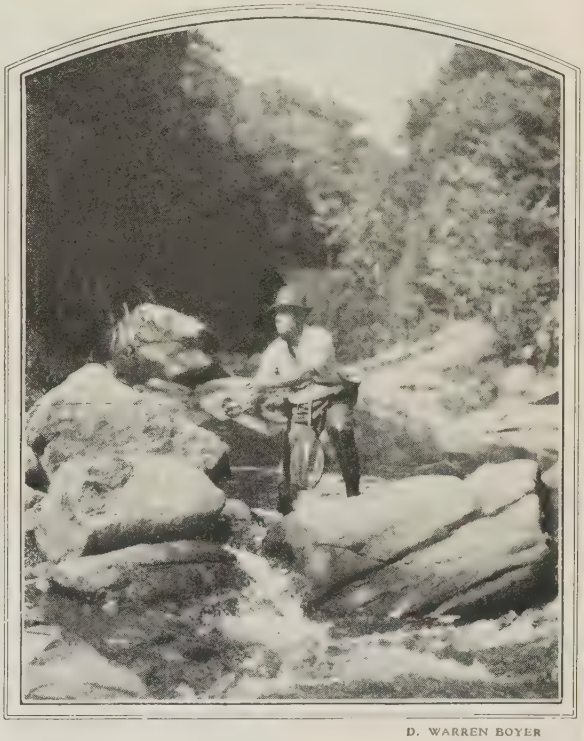
C. H. BROWN

One of the signboards that tell you this is New England—an old covered bridge in Riverside, Vermont

(Below) The old mill passes as an economic factor, but as a thing of beauty radiating peace, it still lives

D. WARREN BOYER

Just another New England roadway, filled with its miles of scenery



D. WARREN BOYER

"Steady, now! Let the bait drift down with the current! There he is—about to strike!"

H. I. ORNE

MOUNT WASHINGTON SEEN FROM PINKHAM NOTCH
Mecca of the mountaineer or the summer visitor who can scale the heights afoot or by mountain railway

OVER LOFTY TRAILS

New England's Mountains Beckon to the Outdoor Lover

by Paul R. Jenks

Secretary, Committee on Trails, Appalachian Mountain Club

A ROLLING country near the coast, hills farther inland, mountains in sight of the sea,—so the early settlers found New England. Exploring up the rivers, they came upon many low divides, embraced by mountains rising three, four, or five thousand feet into a wilderness of summits, whose dominant peak rose more than six thousand feet above the sea.

Pushing their settlements north and west, they found the watershed between them and the Hudson River threading among the Berkshire Hills and rising to Mt. Greylock. The same range ran north through Vermont over Camel's Hump to Mt. Mansfield, dividing the watersheds of the St. Lawrence and the Connecticut. Following the Merrimac to its sources, they came to the headwaters of the Connecticut in the heart of mountains. In the lake-dotted interior of Maine they found the great northeast sentinel of the Appalachian Range, Katahdin.

For many years these summits received little attention. The struggle for existence was persistent. A few real spirits climbed them for spiritual satisfaction. Others had neither urge nor leisure to attempt them.

But with the accumulation of wealth came leisure; came the desire to visit the mountains and know their stores of interest and pleasure. Few could then, or can now, reach the top of a mountain without a definite route, and the era of mountain climbing in New England may be said to have begun when the first trail up Mt. Washington was opened in 1819 by Ethan Allan Crawford, for whose family Crawford Notch was named.

Then came the railroad and brought parts of the mountains within relatively easy reach of the cities of southern New England. Summer hotels of large size were built at nearly all the low level points of scenic beauty accessible by rail or stage ride. Groups of people came year after year for most of the season, and some had cottages on the hotel property.

Such hotels provided routes to the neighboring summits, rough carriage roads, bridle paths, or trails. Summit houses were erected on many mountains, affording rude but comfortable quarters, so that guests could obtain shelter, warmth, food and lodging, and so

ARTHUR B. HUSSEY

KATAHDIN, NORTHEAST SENTINEL OF THE APPALACHIANS

This is well-named the Knife Edge, while the most distant peak in the picture is called Pamola

enjoy all the beauties of the scenery, including sunset and sunrise, with less of the discomforts and none of the dangers which otherwise attended the climb. Few summit houses survived, being short of season and expensive. Their patrons were of a class unable to afford high rates. A rich man is likely to seek the Kingdom of Heaven by every other method than by climbing a mountain afoot!

Because of the fame of Mt. Washington, the rack-and-pinion railroad to its summit, built sixty years ago, has been successful. On the other side of the same mountain the "Carriage Road," which for years barely paid for its maintenance, is becoming profitable for automobile traffic. The latest summit house, simple but comfortable, meets the needs of all who arrive by any route. On Moosilauke, the old "Tip-Top House," once abandoned, has been reopened by the Dartmouth Outing Club with success due to the patronage from boys' and girls' camps. Some other mountains have houses reached by roads well up on their ridges, whence trails lead to the summits. But with such exceptions foot trails have come to be practically the only routes for reaching the summits of the New England mountains.

H. I. ORNE

HERMIT LAKE SHELTER, MT. WASHINGTON

Such provisions, as well as houses, are made for those who follow the mountain trails

On some of the peaks trails have existed for a long time. The forests have substantially all been logged, and in the process logging roads have been driven as high as the lumbering. Many men reared and remaining near a mountain have enough interest in it or affection for it to locate a route to its summit for themselves. Very likely they use one of these old logging roads as a part of the route, supplementing it with a farm road, a pasture path or a boundary

H. I. ORNE

LAKE OF THE CLOUDS ON MT. WASHINGTON

Across the water is the Appalachian Mountain Club hut where trail followers are cared for. This is five thousand feet up

line, and spotting a trail at the upper end. Perhaps they place a rude sign to mark the beginning of the trail. They are glad to describe the route to anyone who asks for information. Usually the way is quite clear to the informer, seldom is it very obvious to the inquirer.

Another type of trail-maker is the "city fellow" who loves the mountains and spends his vacation among them. If he finds an obscure trail, he realizes that it would be more useful if its route were really evident, and cleared of obstructions. He proceeds to improve it. He finds that a neighboring mountain has apparently no known route of ascent. He locates and clears one, and perhaps provides it with crude, but adequate signs. If he is a permanent summer resident in the vicinity, he probably maintains the trail, otherwise Nature starts to reclaim it and it is soon lost.

More than fifty years ago the Appalachian Mountain Club was formed in Boston, to bring together for cooperation all those interested in the mountains of New England. As a result of the growth of this Club in numbers, in experience, and in efficiency, and the formation and development of the Green Mountain Club and numerous local organizations, all of which are associated in the New England Trail Conference, there has been effected an extraordinary increase in the accessibility of the mountains by trails.

Trails scarcely count unless they are known and marked and kept in condition, a fact which few individuals fully realize, but which an organization must face. If a club claims to maintain trails and solicits membership upon this ground, these trails must be marked in some way with its insigne, and its reputation depends upon their character and condition. A club may publish a map, list, or description of its trails, thereby increasing its prestige and its membership, and a knowledge of its trails among the general public.

H. I. ORNE

MOUNTAIN TRAILS WELL MARKED

The author of this article has done a tremendous work in providing these

An additional advantage to the New England mountains has been the establishment of the White Mountain National Forest, and of state and town forests. In taking steps to establish the former about 18 years ago, the Federal Government intervened at a most critical time, both to save the virgin forest upon the higher slopes,—previously unprofitable to strip, but no longer so,—and to conserve large tracts of small second growth not only from cutting, but from fire. This

H. I. ORNE

A VIEW FROM THE TRAIL WORTHY OF A PAUSE

Looking from the Nelson Craig Trail on Mount Washington toward the Glen and Carter Range, a view one dislikes to leave

saved a great part of the White Mountains from being reduced to a stripped, barren, repulsive region, and instead has made them increasingly attractive with each year's new forest growth.

The example and prestige of the United States Forest Service has served to help the New England Trail Conference in its plans to extend the mileage and raise the standards of trail construction and maintenance. The Conference includes forty-two constituent organizations, with a total membership of about ten thousand. At least this number of people have such contracts with the outdoor life of New England that they definitely enroll and pay annual dues to protect and further the good of the cause.

The program of the Conference is to develop the tramping possibilities of New England by linking trails so that there will be a logical system related to the central plan of one or more continuous routes across New England and serve as a section of the proposed Appalachian Trail from Georgia to Katahdin. This system runs from the interstate Palisades Park in New York to the Taconics in Connecticut, over Mts. Everett and Greylock in Massachusetts and the existing "Long Trail" of the Green Mountain Club in Vermont to Jay Peak, very near the Canadian line. Branches connect with another route east of the Connecticut River up through New Hampshire to the White Mountains; thence across into Maine and "on to Katahdin."

Practically, however, man does not tramp by trails alone. Tramping is facilitated if it can be made continuous and if the pack can be relieved of tentage. Therefore many of the outdoor clubs provide shelters along their trails, so that the tramper may be assured of a tight roof over his head and protection against wind and rain at the end, if not also in the middle, of a day's hike. So in sections where the fullest development has been made, the climber need limit his tramp only by the number of days' provisions he desires to carry.

There are being developed, also, systems of huts or camps, distinguished from shelters by being of closed construction, having a keeper, serving meals, and affording bunks and blankets. Of this type are the unique Proctor Lodge of the Green Mountain Club, and the five Appalachian Mountain Club huts or camps. *(Continued on page 341)*

ARTHUR B. HUSSEY

A VIEW OF KATAHDIN AND CATHEDRAL ROCKS

No mountain climber can but thrill with the conquest of this mountain and the delights it holds

H. ARMSTRONG ROBERTS

New England's Wild Flowers

They Are Loved Not Wisely but Too Well

by Mrs. S. V. R. Crosby

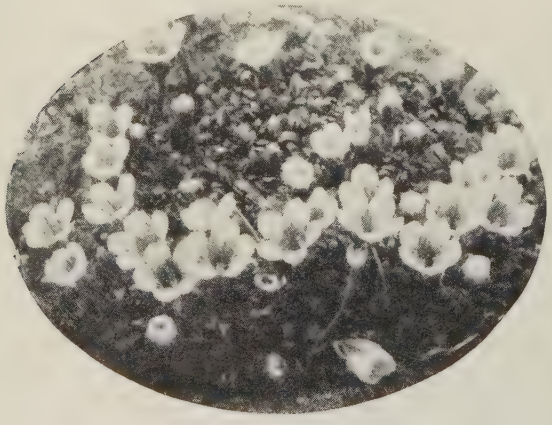
President, New England Wild Flower Preservation Society

L. W. BROWNELL

PARTRIDGE BERRY

Gathered for winter decoration. Across the page, the ox-heart daisies find a good home

A GENERATION or two ago it was a Mayday custom in rural New England to leave a May basket at the doorway of one's real or desired sweetheart. A paper basket of fanciful design was hung on the doorknob under the cover of darkness, the bell or knocker was touched, and a well simulated attempt was made to retire undetected. And in the basket was always placed a spray of freshly gathered arbutus—the "May flower" of the region. It was a spring token.



LAPLAND DIAPENSIA OF THE MOUNTAINS

At the right is the charming musk mallow, a denizen of the lowlands, one of the most beautiful of the Yankee wildings, though an immigrant

There is a pretty Indian legend that tells of the birth of the arbutus under the gentle ministrations of the Summer Goddess, who warmed the frozen leaves of the tree that had been the tepee of the Winter Manitou, and breathed into them new life and fragrance. Then she left them as a sign that should tell the children that the Winter Manitou was no more, and summer had come to reign in his stead. Better known are the simple verses of Whittier in reference to the joy of the Pilgrims at finding in the new and inhospitable land a substitute for the Mayflower they had left behind in old England. And "Mayflower" it is to this day in our country districts, and the appointed State flower of Massachusetts. Unfortunately it is sold in large quantities, both by the florist and by the street vendor. The gatherer, intent only on present gratification or gain, often uproots and destroys the long running stems to obtain the few sprays of sweet-scented blossoms that each plant produces. Since the arbutus increases little by seed, but chiefly by the new plants that spring from the trailing stems, the beauty of its waxen blossoms often becomes its death warrant.

The poets' songs in praise of the flowers of spring are proverbial, and New England has been singularly

L. W. BROWNELL

FRANCIS HARPER

THE SHINLEAF

A modest beauty. At the right is the flaming cardinal flower that favors the banks of streams

fortunate in that her favorite poets have written often of her flowers, and always with that accuracy and depth of feeling that come from personal acquaintance and genuine affection. There can be little doubt that New England's Nature-loving writers of prose and verse have been a potent influence in building up that deep regard for the beauty of flower and fern that is spreading so fast among our people, and that we trust has not come too late to save some of our most cherished wild flowers from the destruction that threatens them.

About the time that the arbutus is at its height there spring those other blossoms scarcely less dear to the flower-lover. All winter, under the snow, has lain the hepatica or liver-leaf, *Hepatica triloba* of most authors, its dark green leaves marking the spots where with the first warm days the long-stemmed flowers, seemingly clothed in fur as if needing protection from the still frosty nights, will open their white or lavender petals. With them in the unleafed woods will appear the pure white of the many-petaled bloodroot, *Sanguinaria canadensis*, and in favored places the dainty pinkish spring beauty, *Claytonia virginica*. The so-called dogtooth violet, really the trout or fawn lily, pushes up its spotted leaves from the bulb that for several years has been growing in size, and each season has burrowed deeper, and now opens its nodding yellowish bell to the breezes. Our very earliest of the wood flowers, the malodorous skunk-cabbage, has long

L. W. BROWNELL

L. W. BROWNELL

ago opened for the pioneer bees and is now forming its seeds.

A little later come the flowers of later spring, such a numerous company that their mere listing is impossible. In the deep rich woods are the trilliums, jack-in-the-pulpit, bell-worts, false Solomon's seal, mandrake or may-apple, the downy yellow violet, and the lady's-slippers; on the rocky cliffs shine the red columbine and the more modest saxifrage; in the wet meadows open

FRANCIS HARPER

LADY'S SLIPPER, ONE OF THE ORCHID GROUP

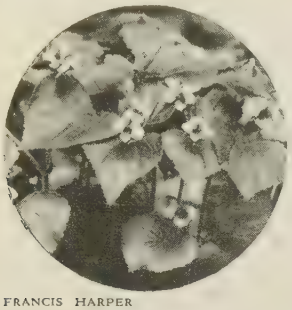
To the left is the large-flowered trillium, called the wake-robin. One of the most showy of a rare old distinguished family

the marsh-marigold, blue-flag, blue violets, and meadow-rue; in the bogs rise the dark flowers of the eerie pitcher-plant; in the drier fields are spread the carpets of the bluets and the bird's-foot violets. Most of the bog orchids and the true lilies come still later, and with them such a riot of flowers that space forbids their enumeration either by season or habitat.

Another phase of the matter, however, has come to claim the interest of Nature lovers. Due in part to the Nature study courses, given now in nearly all of our

THE DAINTY VIOLET

It gleams up amid the green of mossy banks and woods, a well beloved favorite with all



FRANCIS HARPER

L. W. BROWNELL

THE DAINTY HEPATICA IS A PURITAN BEAUTY

Flowers like this need the protection of those that love them. Indiscriminate picking has thinned their ranks

BUNCH BERRIES

Or Cornus canadensis, *pictured on a slope of Mt. Katahdin. Animals and birds seek its berries*

FRANCIS HARPER

schools, the tardy interest of thousands of people has been aroused. The easy means of locomotion afforded by the automobile and the development of summer camps for every age have spread widely a superficial knowledge of our native flora, and with it an ambition to gather plants without giving any consideration as to what will be the outcome in future years. As far back as 1900 a few far-seeing people became alarmed at the destruction of some of our rarer wild flowers, and united to form a society called the "Society for the Protection of Native Plants". They issued many circulars, built up a membership, spread their publicity by the newspapers, and made an excellent beginning. After more than twenty years' experience they felt that their work demanded a larger scope, and so united with the Conservation Committee of the Garden Club of America, in cooperation with the Massachusetts Horticultural Society, to form what is now called the New England Wild Flower Preservation Society.

This organization has built up a membership of one thousand six hundred adult members and over five thousand juniors. It works largely in the schools, by means of lectures, illustrated with colored slides suitable for young children or those of high-school age. In these talks stress is laid upon the study of such plants as should not be picked, or those that may be gathered in moderation, and also of those that may be picked freely. Lists of all three types are distributed gratuitously by the Society, with the feeling that it is of prime necessity to interest the people in the protection of the rarer flowers; for no laws, however good, are effective unless they can be enforced, and we cannot have a policeman in every bog and woodland to protect its treasures.

L. W. BROWNELL

QUEENS AMONG THE FLOWERS

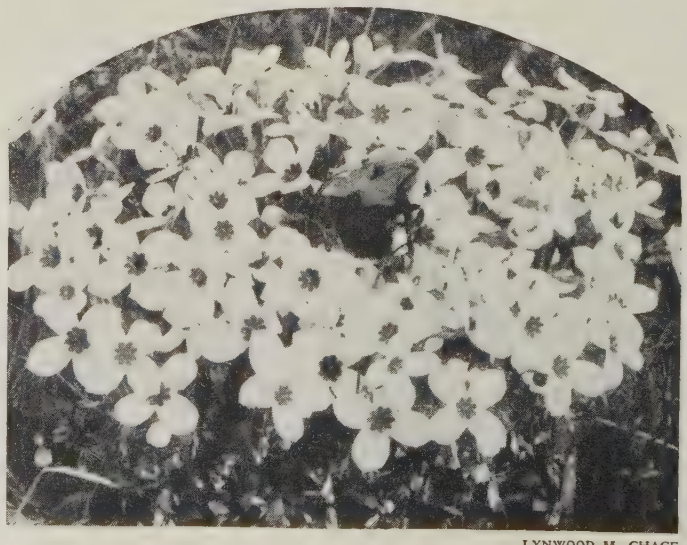
Above, the fragile bloodroot lords it over the swamp rose mallow, while below the bluets nod. These are but three of hundreds of New England flowers craving the intelligent love of citizens

Among our rarest and most beautiful plants are the orchids of which, in 1884, forty-seven varieties were listed as having actually been found in New England, but even then, several, such as *Peramium menziesii* and *Pogonia affinis,* were very rare. In contrast the pink ladyslipper was, and still is, found in great abundance in many places, for the custom of digging it up for sale is less prevalent here than in some other sections. Many of the wild orchids, however, are gone from the places where they were common thirty years ago, and this is also true of many other beautiful species such as the arbutus, *Epigaea repens,* the cardinal flower, *Lobelia cardinalis,* the swamp magnolia, *Magnolia glauca,* and the trilliums, *Trillium grandiflora* and *T. undulatum.*

Formerly the amateur knew little of the types of soil necessary for the culture of the wood and bog plants, and hundreds of enthusiasts to this day do not realize that many of our woodland flowers must have an acid soil if they are to survive transplanting. Such lovely flowering shrubs as the laurel, *Kalmia latifolia,* the pink azalea, *Azalea nudiflora,* and the blueberries, *Vaccinium,* are very dependent on acid soil. Fortunately more and more people are beginning to learn this important lesson, and in the present zeal for wild gardens we may hope that many of our rarer species will be preserved for generations to come.

Many plants suffer from too much picking,

(*Cont. on page 343*)



LYNWOOD M. CHACE

L. W. BROWNELL

L. W. BROWNELL

RED SQUIRREL, MUSKRAT AND WHITE-FOOTED MOUSE

There are ten members of the squirrel family and twenty-three of mice and rats numbered among New England's mammals

FRANCIS HARPER

NEW ENGLAND'S LAND MAMMALS

Settlement Has Left Many Interesting Species

by Francis Harper

At the time that Samuel de Champlain was voyaging along our coast, an Indian might have crossed New England in any direction practically without leaving the forest shades. Here was a world of green hills and valleys, covered with "murmuring pines and hemlocks" and inhabited by an intensely interesting assemblage of birds and beasts. While life then, as now, was an incessant struggle between the hunters and the hunted, with individuals constantly falling by the way, yet the various species survived, being mutually dependent and harmoniously adjusted in Nature's scheme. Here and there was an exception, it is true. By this time the mastodon no longer roamed on Cape Cod, and the horses, peccary, elephant, cave bear, saber-toothed tiger, giant beaver, and others, once found in eastern North America, had long since passed from the scene. Although the reasons for the passing of these prehistoric mammals are more or less inscrutable, we may recognize that it is perhaps just as natural for old species to die out as for new species to be evolved in our ever-changing world.

The changes in our fauna that have been caused by settlement are perhaps less pronounced in New England than in most of the Eastern States, for in spite of its dense population, it is still largely forested. Though the lumberman has felled the woods time and again, and has ranged the length and breadth of New England until there are few considerable areas of virgin timber left, even second growth has attractions for both animals and naturalists, and in such woods, covering thousands of square miles between the St. John River and the Hudson-Champlain Valley, we may still find most of the mammals that were here when the Pilgrims landed. Only a few,—the sea mink, wolverene, gray wolf, cougar, fox squirrel, and woodland caribou,—have become virtually or quite extinct in our region.

L. W. BROWNELL

A WHITE-TAILED DOE DEER

More adequate protection is gradually bringing back the population of deer in southern New England

The sea mink was about twice the size of a common mink, and lived among the rocky islands along the coast of Maine and in the Bay of Fundy. Its large size created a special demand for its fur, which practically terminated its existence about sixty years ago. The animal disappeared before any skins had found their way into museums, and it

FRANCIS HARPER

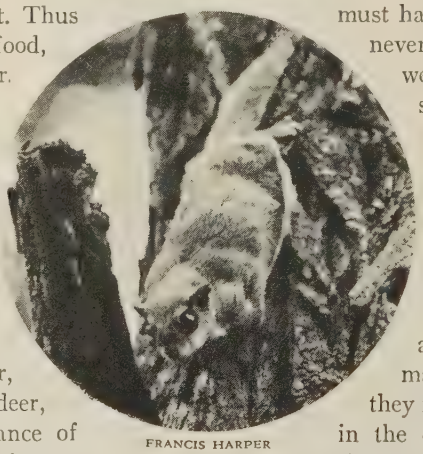
FRANCIS HARPER

FOUR MAMMALS

At the left the black bear sniffs a lure that is hooked to a camera shutter and takes his own picture. At the right a young raccoon enjoys his bottle. In the circle is the flying squirrel ready to take off. Below, the woodchuck meditates as he prepares to enter his den

was eventually described from skeletal remains in Indian shell-heaps on the Maine coast. Thus aborigines used the sea mink for food, and probably clad themselves in its fur.

Comparatively little information seems to be available concerning the early status of the wolverene, but it was never abundant, and practically dropped out of the record many years ago. There are, however, rumors of its recent occurrence in northern New Hampshire and on Mount Katahdin in Maine.



FRANCIS HARPER

The advance of settlement together, perhaps, with a dwindling supply of deer, accounted for the general disappearance of the gray wolf and the cougar a generation or more ago. Authentic specimens of wolves from New England are all but non-existent. A skin taken in the Moosehead Lake region in 1863, and now in the collection of the Boston Society of Natural History, is the only one of which I have knowledge. The cougar has fared a little better in the matter of preserved specimens. Of half a dozen or so now extant, probably the best known is one that was taken near Wardsboro, Vermont, in 1875, and is now on exhibition at the Boston Society. Strangely enough, within the last few years there have been reports of cougars in every New England state except Rhode Island, and a few of them may have been authentic. In the case of such a wide-ranging species, just one or two individuals could easily be reported in several different states. Perhaps the deer have once more become sufficiently abundant in New England to support a few cougars here and there.

A few woodland caribou lingered in Maine into the present century, and the tableland of Mount Katahdin was one of their last retreats. The Maine backwoodsmen still discuss the mystery of the disappearance of the caribou, claiming that they were not killed but that they must have migrated to New Brunswick. It is nevertheless certain that their numbers were seriously reduced by hunting. Last summer, at one of the narrowest parts of the tableland on Katahdin, I noticed an obviously artificial circle of rocks, which very likely had been constructed long ago as a blind from which to shoot caribou. It commanded the entire width of the tableland at the "Saddle", and any caribou running past would have made an easy target. It is notable that they frequented this bleakest spot in Maine in the depth of winter, being attracted by their favorite food of reindeer "moss".

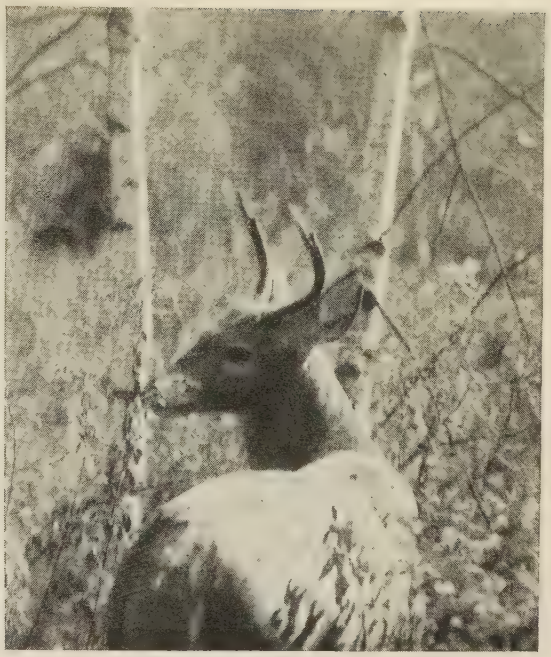
The land mammals of New England, including the half dozen recently extirpated or nearly extinct, number

LYNWOOD M. CHACE

FRANCIS HARPER

STILL MORE MAMMALS

The chipmunk at the left munches away without concern while the deer at the right wanders on the estate of Hon. F. C. Walcott of Connecticut. In the circle is the little brown bat, one of the nine bats found in New England, and below the porcupine gnaws calmly on a bit of twig while snapped



about eighty-four species and subspecies. Among them are one opossum, three moles, nine shrews, nine bats, twenty carnivores, ten of the squirrel family, one beaver, twenty-three mice and rats, one porcupine, four hares or rabbits, and three of the deer family. One hare and four rats and mice from the Old World have become established as part of our fauna. Certain rabbits from the West have been introduced at various times, but it is difficult to say how permanent a footing they may secure in New England. Two subspecies of shrews and four species and subspecies of mice are endemic on islands off our southern coast—Nantucket, Muskeget, Martha's Vineyard, Monomoy, and Block Island. Though mammalogists have done much work on distribution and life-histories, the ranges of many forms are known in only a general way, and numerous important details of life-histories await study. Especially does the economic status of various predatory and fur-bearing species deserve the most careful investigation, lest unwarranted prejudice or inadequate legal protection deprive us of a priceless natural asset.

FRANCIS HARPER

The great diversity of climate in New England makes this an especially interesting field for the zoögeographer, for no less than five different life zones are represented, from the Arctic-Alpine of Mounts Washington and Katahdin to the Upper Austral of southern Connecticut. In each, certain mammals find conditions most congenial. Two little species,—the big-tailed shrew and the rock vole,—seem to be confined to some of the coldest mountain-tops or a few of the deepest and coolest valleys; perhaps they may be considered glacial relics.

One of the mammals that the collector always delights to find is the white-lipped water-shrew; and he may count himself lucky if he ever secures more than one in a locality. Where a sparkling trout stream tumbles down a mountain side or meanders through a valley, there this aquatic creature may make its home. Its large size, blackish fur, and the conspicuous hairy fringes on its feet readily distinguish it from our other long-tailed shrews. It was first discovered by Cope in 1859 at Profile Lake, N. H. It occurs through northern New England and extends at least as far south as southern Worcester County, Massachusetts, where I collected several last year. The pigmy shrew,—our smallest mammal, weighing little more than two grams,—is either so rare or so elusive that the capture of one remains an unfulfilled dream for most mammalogists. Many vain searches

L. W. BROWNELL

have been made. Yet Prof. Manton Copeland and some of his students at Bowdoin College have assembled no less than nine local specimens,—one of the largest series on record. Three of the New England states have not yielded even a single individual.

Bats are always of fascinating interest, and the nine species occurring in our region afford many intriguing problems of distribution, hibernation, migration, and general life-histories. Caves in the limestone area of the Green Mountains shelter numerous bats, and three or four different species may be found hibernating in apparent harmony in a single cave. Yet when Dr. Glover M. Allen and I visited some of these very caves in August a few years ago, we were unable to find a single living bat. At this season they must find other quarters more to their liking. Investigations have shown that certain species, such as the silver-haired, red, and hoary bats, perform definite migrations in the fall along Cape Cod and at other points on the coast. Yet we still know all too little as to whence they come, where they go, and when they return.

One of the most characteristic inhabitants of the mossy evergreen forests of northern New England is the red-backed mouse. Here one may occasionally see it running about in the daytime. At Togue Ponds, Maine, I had the rare pleasure of watching one at a distance of a few feet as it foraged over dead spruce limbs on the ground, stripping off bits of dry lichens and devouring them on the spot.

Many who have been charmed by Frank Bolles's writings on the Sandwich Range will recall his *Night on Chocórua*. While spending the hours of darkness in a crevice beneath "The Cow," a huge boulder resting a little uncertainly on the precipitous slope just below the summit, he watched a strange mouse that ventured within the rays of his lantern, but his speculations as to its identity were not at all conclusive. When, therefore, I first climbed the mountain in 1926, I set several traps beneath "The Cow," and the next day found there a red-backed mouse. This answered very well to Bolles's description of his nocturnal visitor, of which it may have been even a lineal descendant! It was pleasant to think of having thus solved a little mystery of about forty years' standing.

The rock vole, owing to its specialized habitat and its rarity, is decidedly a collector's prize. It was first made known to science by Gerrit S. Miller, Jr., from specimens collected on Mount Washington in 1893. Even up to the present time it seems to have been found in New England only in the higher portions of the Presidential Range, in a couple of deep, cold valleys near-by, and on Mount Coburn, Maine. Rocks, moss, moisture, and low temperature seem to be essential factors in its habitat. In late June I have found it living about the borders of a large snow-bank just above the head of Tuckerman's Ravine. To the casual observer it would pass for an ordinary meadow mouse, except for its golden-brown cheeks, which give it an air of distinction. Its long, dense fur is thoroughly needed to protect it in the Arctic environment that it chooses for its home.

The wind-swept islet of Muskeget, lying off Nantucket, is famous not only for its great colonies of gulls and terns, but also as the sole home of the Muskeget meadow mouse. It bears considerable resemblance to the common meadow mouse of the mainland, of which it is probably an off-shoot, evolved through thousands of years of living in a specialized and isolated environment.

Muskeget is also inhabited by a white-footed mouse, which weighs somewhat more and seems a little brighter in color than the common white-footed mouse. Here is a case, perhaps, where we may almost watch evolution at work in producing a new form.

While the large game animals are generally among the first to succumb to the encroachments of civilization, yet they can be given a reasonable degree of protection by legal measures. Thus the deer is almost certain, and the moose is likely, to have a place in our fauna for generations to come. On the other hand, some of the rarer and more valuable fur-bearers can not indefinitely survive the intensive trapping of recent years. In the very nature of the case it would be a matter of great practical difficulty, as long as any trapping at all is permitted, to protect such vanishing species as the marten, fisher, and Canada lynx. These three may be considered to have already reached the danger point in New England. During a recent year the taking of only between twenty and thirty each of the marten and the fisher was reported in the whole state of Maine. In Vermont and New Hampshire conditions are no less alarming. The great need of protecting these particular species is generally recognized and strongly urged. But what Solomon will come forward with any solution of the problem short of prohibiting the trapping of all fur-bearers?

A few generations ago the deer was practically wiped out of southern New England before any adequate protection for it had been devised. With better game laws, however, it has returned to a large part of its former haunts. In Massachusetts, for example, hundreds are now taken each year by hunters. In the meantime it has also increased its range to the northward. This was probably made possible by the disappearance of its enemy, the gray wolf.

In former times the moose doubtless stood in much the same stead to the Indians of northern New England as it does today to the Crees and other tribes of the Northwest. Besides feasting on its excellent meat, they were able to make its skin into a variety of needful articles, especially coats and moccasins. Today, thanks to good protective laws, the moose is increasing in Maine and a few are still found in northern New Hampshire. A few also roam the Berkshires, having escaped from a private preserve. If the summer visitor to Mount Katahdin will pause at the Basin Ponds, halfway to the summit, and look back a couple of miles to Sandy Stream Pond, he will have a fair chance of seeing a moose submerging for water plants in the middle of the pond.

The mountains and forests of New England, from the Berkshires northward, still shelter a fair number of black bears. In certain sections, such as northern New Hampshire, they are even sufficiently numerous to inspire prejudice and bounty laws, because of the occasional killing of sheep and calves and the raiding of

(Continued on page 345)

SEA FOAM
The waves break ceaselessly against the mountain bases of this coastal National Park

Acadia National Park

A Seacoast Possession of the Nation

by George B. Dorr

Superintendent of Acadia National Park

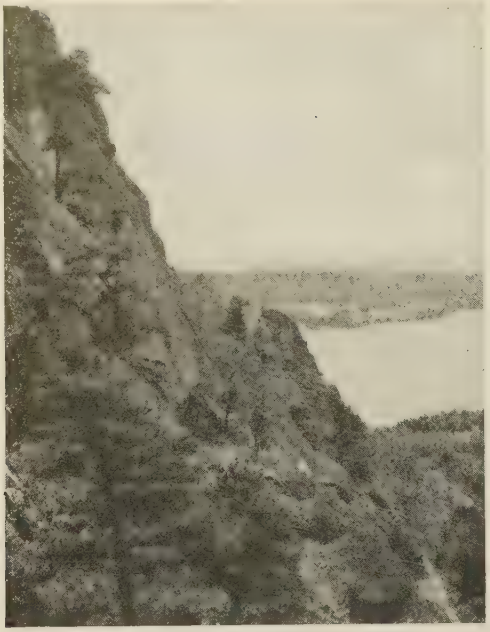
Lafayette National Park, placed in old Acadian territory on the coast of Maine, has been for the past ten years the only National Park in the United States east of the Mississippi. It sprung from state-incorporated public reservations, extending over the mountain heights and wooded valleys of Mount Desert Island, which had been formed by President Charles W. Eliot of Harvard, by the present superintendent of the Park, and a few other early summer residents. By the commencement of the Wilson Administration these reservations had assumed importance enough, in view of the wonderful coastal scenery they command, to be offered to the national government. Franklin K. Lane, Secretary of the Interior, welcomed the gift, which three years later, with lands increased and deeds perfected, became by presidential proclamation the Sieur de Monts National Monument.

The territory was that of the ancient French province of Acadia, of which the Sieur de Monts was founder. De Monts was commissioned by Henry IV, Henry of Navarre, Huguenot protector and great king, to take possession as viceroy of the land for France under the name of l'Accadie, a name, the commission states, with which he had become familiar through accounts brought back by fishermen and traders returning from its shores.

YOUNG EAGLES ON THE NEST
The characteristic white plumage of the head will come with age

That was in December, 1603; in March, 1604, de Monts set sail, bringing Champlain as aide; and while he was founding his first colony on an island in the tidal estuary of the St. Croix River, where our national boundary now runs, he sent Champlain in an open sailboat with a dozen sailors to explore the western coast. One long day's sail with favoring wind brought him to the head of Frenchman's Bay, as the *Bastonnais*—the people of Boston and the New England coast—later called it, when he discovered Mount Desert Island and named it from the bare rock peaks he saw against the western sky, *l'Isle des Monts déserts.*

Two days later, guided by Indians dwelling on its shore, at Hull's Cove apparently where



SOMES SOUND

The only glacial fiord upon our eastern coast, seen from the southern cliff-face of Acadia Mountain

many Indian relics have been found, Champlain sailed on around or through the archipelago of lesser islands lying between it and Penobscot Bay.

Ascending the long estuary of the Penobscot River, which he calls the Norumbégue, Champlain reached an Indian village at the head of tidal water near the present city of Bangor, commenting in his journal on the open, park-like beauty of its eastern shore, the dark forest on its western.

Upon that trip he also named the *Isle au Haut,* outermost headland of the submerged coast whose heights now form the islands and whose valleys are the thoroughfares and channels of that uniquely picturesque, sea-penetrated shore.

A few years later Henry IV was killed by a fanatic in the streets of Paris, and de Monts, a Huguenot, returned to France, where by King Henry's earlier appointment he was Governor of Pons, an ancient city in southwestern France established as a place of refuge for Huguenots; and there he passes out of sight, an interesting and gallant figure which appears and vanishes.

In 1613 a Jesuit mission to convert the Indians, financed by Mme. de Guercheville, a wealthy and pious lady of the Court, dropped anchor, after a long and dangerous voyage, in the harbor at the entrance to Somes Sound, a glacial fiord which divides in two the Island's mountain chain, and, welcomed by Indians established on the opposite shore, commenced a settlement on a grassy meadow sloping to the sea which still bears the name of Jesuit Field. Then, one fair summer day, an English vessel from Virginia, captained by Sir Samuel Argall, came sailing in and without pause or warning opened fire upon the mission, which it wrecked, carrying off as prisoners two Jesuit fathers, whose full account is published in the Jesuit Narratives.

That, Parkman says, was the first act of overt warfare in the long century and a half struggle between France and England for the possession of North America, a struggle which ended only on the heights of Abraham in the capture of Quebec.

During this struggle Frenchmans Bay played its part as a rendezvous for French vessels in attacks on the New England coast, or as shelter when attacked.

Two generations after the wrecking of this settlement, Mount Desert Island and two square leagues upon the opposite mainland were granted, as a feudal fief, by the Government of Quebec and Louis XIV to Antoine de la Mothe Cadillac, a soldier of Acadia, who became its Seigneur. Later, joining Frontenac on the St. Lawrence, he founded Detroit, the 'City on the Strait,' but for a time he lived apparently upon the Island, on the shore of Frenchmans Bay, until in the warring of the period his home was wrecked.

The next act in the drama was carried out upon the battlefields of Europe and ended in the Peace of Utrecht in 1713, by which all Acadia, save only Cape Breton with the strong fortress of Louisberg, was ceded to England. But the cession was a fiction only and warfare still went on until the capture of Louisberg in 1758, after a long siege by land and sea, and the fall of Quebec in 1759, which marked the final downfall of the French Dominion in America.

Then only began colonization from Massachusetts, by the efforts of whose last English Governor, Sir Francis Bernard, that portion of Acadia which is eastern Maine, including Mount Desert and the National Park and all the coast between to the Penobscot River, was granted to that Province. The rest, with its French peasantry, whose fate in part is told by Longfellow in *Evangeline,* became Nova Scotia and New Brunswick.

For his services in securing to Massachusetts the western portion of Acadia that Province gave to Governor Bernard the Island of Mount Desert, ignoring Cadillac's early claim, and

JORDAN POND

A deep, ice-excavated rocky basin in the heart of the Park range

King George confirmed the grant. He sailed to visit it in 1763, from Fort William in Boston harbor, bringing with him surveyors and a considerable suite, and laid out for settlement the town of Southwest Harbor with in-lots and out-lots, and kept a journal, still extant, telling of the trip.

Then came the Revolution. Governor Bernard took the English side. His lands were confiscated and Mount Desert Island again became the property of Massachusetts, not Province now but Commonwealth.

After the Revolution was over, petitions for a grant of the Island were received by the General Court of Massachusetts from the grand-daughter of Cadillac and the son of Bernard; and the Court divided it between them, giving to the grand-daughter of Cadillac and her husband, M. and Mme. de Grégoire, the eastern half, whereon the highest mountains are, and the park headquarters at Bar Harbor; and the western half beyond Somes Sound to Bernard's son.

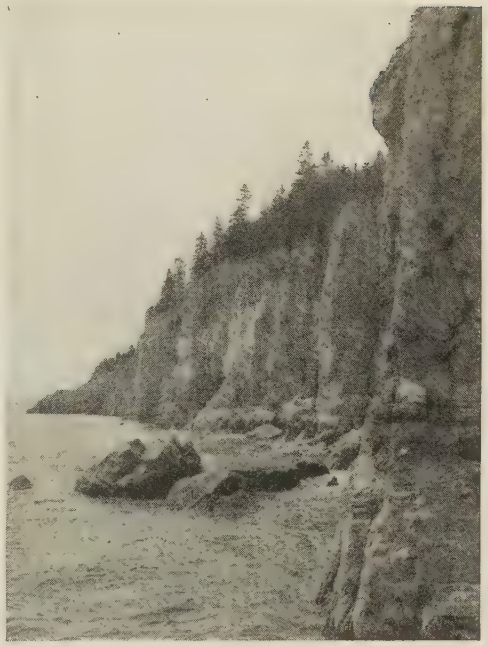
From these two grants, the one recalling French Acadia and the ancient grant to Cadillac, the other the passing of Acadia to England and the grant to Massachusetts, come, apart from a few early settlers' granted claims, the titles of the United States to its park possessions on Mount Desert Island, as yet its only ones within the eastern states.

When Congress gave the Sieur de Monts National Monument its first appropriation, the Appropriations Committee coupled it with the statement that the tract was by nature a national park area and should be made a park. A bill to make it so was introduced accordingly by Senator Hale of Maine which duly passed and was signed by President Wilson on his first return from France, on February 26, 1919.

The period when the bill was introduced, in the summer of 1918, was one when all men's thoughts were turned to France and the youth of America on its way to battle there; and the name of Lafayette suggested itself for the new park possession that once had been a portion of old France and that looked out upon the ocean which our men were traversing.

Ten years later, when another bill was introduced by the Hon. John E. Nelson of Maine, Representative from its district, to give powers to the Secretary of the Interior for the Park's enlargement beyond the limits of Mount Desert Island, opening a new future to it, it seemed wise to take for it a name telling in a single word of the long history that lay behind it, with which it was so closely bound, and call it Acadia National Park, which was approved and done.

The Park looks out upon a submerged coast, a sunken land, the worn remnants of whose ancient heights are islands and headlands, whose stream-eroded valleys form bays and estuaries. The whole coast of Maine from Portland east has this submerged character, giving it its extraordinary length of shoreline and recreational importance.



ROCKY SHORELINE

Lava cliffs fronting the sea on Ironbound Island in the outer portion of Frenchmans Bay

From Penobscot Bay to Frenchmans Bay the scenery culminates in bold and mountainous formations and in a beauty which has long been famous. A multitude of islands links these bays with delightful waterways traversed of old by the Indians in their bark canoes and ideal now for power and other quiet-water boating. Mount Desert Island is the easternmost and largest in this archipelago. Its mountain range, which forms the dominant landscape feature of the National Park, fronts the sea across it from east to west.

Deeply trenched by glacial erosion dividing it into separate peaks, its highest summit, Cadillac Mountain, rises as a solid block of granite to a broad-topped elevation fifteen hundred and twenty-eight feet above the ocean level, and descends, surf-swept, beneath it. To this summit, from which one looks out over a vast expanse of ocean to a far horizon and up and down the

THE PARK RANGE

Cadillac and Champlain Mountains seen from an outer lighthouse island

coast for fifty miles, the Government is building a road which in sheer beauty will have few equals in the world. The other peaks that form the range, separated by deep wooded valleys and lakes of glacial origin, are reserved for walkers.

From far to sea and east and west along the coast, these bold rock-masses dominate the landscape. Eastward the sun rises from the Bay of Fundy, the "Deep Bay", named by the Portuguese, but by the French, Baie Françoise. Westward, it sinks behind the distant Camden Hills over the archipelago with its mingled lands and waters.

The greatest recreational territory in the country is the New England coast, reaching to the St. Croix River, where de Monts' first settlement of Acadia was made, from Long Island Sound in the vicinity of New York. In early times its waters formed the highroad connecting the colonies with each other and with the outside world. Now it has become a source of infinite refreshment to the great city and industrial populations of the East.

The character of this coast and its extraordinary fitness to great recreational needs are due to glacial action, the ice sheet invasion extending to New York Harbor and there ceasing; and to the deep embayments of a sunken shore.

To Casco Bay, beyond Portland, beaches predominate; from there east is a coast of rocks, culminating in boldness at Mount Desert. But deep embayments, islanded and giving wonderful opportunities for summer life upon the water, are characteristic of great sections of the coast throughout; and the most beautiful of these and most richly islanded is that of the old Acadian region of the National Park.

From the dawn of history the sea, on islanded and harbored coasts, has moulded human character, arousing its energies, stimulating the imagination and awakening the sense of beauty, symbolized by the Greeks of Homer's time in the birth of Aphrodite from the sea-foam off the Isle of Cyprus. That the National Park Service should take part in preserving to the people in free contact this great influence and source of health is the purpose of Acadia National Park. Situated in a region where no public holdings have existed since colonial days, it has been wholly formed by gift; and it is by further gift that it still must grow.

A SYLVAN SCENE IN THE PARK
Wood road through the primeval forest in Acadia National Park

The wild life of the Park is that of its Acadian region, a famous hunting ground, but moose keep to the wilder mainland woods and bears learned long ago to shun the coast. Deer are plentiful and tame. Beaver, formerly abundant, as their traces show, had wholly disappeared till recently when the State Game Commission sent the Park two pairs, who so thrived and multiplied that Vernon Bailey of the United States Biological Survey was summoned and met the problem of their fast increase by the use of traps that catch harmlessly and the encouragement of beaver farming on the neighboring marshlands. They readily grow tame and are a source of constant interest where their flooding activities can be held in check.

Ultimately, fur-farming must replace the cruelty of the wild-life trap, where profit is concerned and not the extermination of a noxious species. The steel trap with the vast suffering it causes has no place in the world today for a luxury of clothing.

Mount Desert Island lies directly on the Atlantic Coast migration route of northern nesting birds of which such wonderful accounts have come down to us from early days; its mountains form a landmark on their flight. And it lies midway upon it, a nesting ground itself for many species wintering in the south, and winter home to others from the north. Their coming and their going mark the seasons.

The American bald eagle, the national emblem, nests in the Park and may be often seen soaring above the mountains or the sea. Ospreys fish the waters and birds of many species feed along the shore, where the great rise and fall of tide twice daily furnishes an inexhaustible supply. In the fall, ducks gather in great numbers on the lakes and nearby ocean waters, and when winter freezes up their northern feeding grounds wild geese come flying overhead, honking, in great V formations, or descend to rest. The whole Park is sanctuary, and outside it the gardens which have become a famous feature of the summer-resident communities along the coast with the native farms and pasturelands attract species which the woods do not. The range is wide and every summer the Massachusetts Audubon Society maintains a July camp for study upon the border of the

(*Continued on page 345*)

ESSEX INSTITUTE

BOWERS OF OLD-FASHIONED FLOWERS
Such as this are found in old gardens in Salem and other New England towns

PURITAN POSIES

Some of Those Which Made the Pioneer Gardens

by Donald Culross Peattie

THE PURITAN who three hundred years ago set his stern face toward the New World must have been loath to quit at least one bit of England,—his garden. In those early westering ships, so crowded with men, women, and children, with household goods and all provision against the wilderness, room was found here and there for a few bulbs, bits of root-stock, packets of seeds. For all his austere defiance of beauty, the Puritan took his flowers with him.

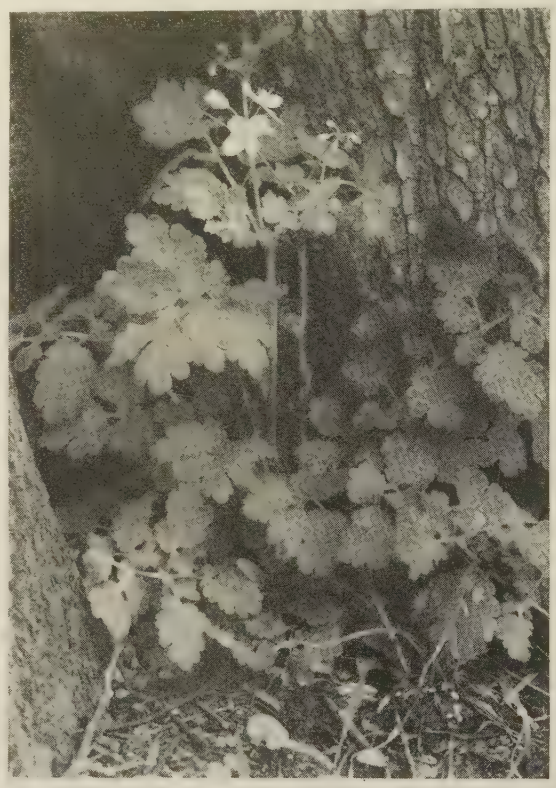
And from such seeds, gathered three centuries ago by some aching-hearted woman in the bright cottage plot she was forever forsaking, has come the quaint delight of New England gardens of today. Oh, those gardens have their modern beauties, lilies and iris, gladiolus and roses, and dahlias such as bloom nowhere else in the land. But it is the Colonial plants, still tended in homestead borders or, as the botany books put it, "escaped from old gardens," that scrawl fragrant history over that rocky soil.

They have taken their chances with winter and rough weather, like the sturdy race that sowed them, and have proved their hardihood. They are the brave survivors of those pioneering slips and seeds gathered in England, for John Josselyn, dating it 1638, left us a list "Of Such Garden Herbs (amongst us) as do thrive there, and of such as do not."

Annis and dill, hound's tongue and hoarhound, coriander and comfrie and marjoram, fetherfew, time, sage, savory, sorrel, chevril, burnet, rew, and Enula Campana,—as Josselyn spells them,—were intended quite

certainly for the mortar and pestle or the kettle of the Colonial household. The Puritan mind looked on most plants as created for man's use, and any flower too beautiful might be some snare of the evil powers.

Yet on that early list appears "celandine, by the West Country men called Kenning wort," that blooms still, a happy outcast, between Marblehead cobbles. And Josselyn mentioned "sweet bryer roses." Primroses might line the path to perdition, but Priscilla told John Alden that she "had been dreaming all day of the hedgerows of England," and beyond a doubt her hungry eyes remembered the eglantine, that, transplanted, blooms still in many an old New England garden.



CELANDINE, A FORGOTTEN RUNAWAY

Descendants of pioneer flowers, they are now often waifs in New England streets and byways

And there are other roses on the rock-bound coast that you will scarcely find elsewhere in America, except in some Charleston gardens;—the musk rose "full of dewy wine," the damask rose, the cabbage rose, the dog rose, and enchanting old moss roses, rare in their pure state outside New England. By the gorgeous standard set by modern roses, they are not perfect, these beloved old English ones. They are small, frail flowers, a little dowdy in a vase, like a woman in clothes gone out of style. They lack firmness, long stems, and every perfection save fragrance. But they have the intangible virtues of a faithful persistence and hardihood, and a place in the hearts of the race.

But time could not improve the pinks of the colonist,—pinks of perfection brought straight from England. Beloved for its perfume was the old clove pink, and the Puritans had varieties prized today, like picotées and bizarres, maidens, selfs, and fancies, though I have looked in vain in modern catalogues for representatives of what those early gardeners called "painted ladies" and "jolly jacks."

And it is from the pink family that so many once prized garden flowers have played truant and "escaped." There is Ragged Robin with his tangled mop of fiery red hair, and his sister Bouncing Bet. Who now, beholding that pretty little hoyden as she wanders down the roadways of old New England towns, or sleeps in the meadows like a gypsy, or dabbles her pink toes in the ditches, would imagine that she had once been a respectable denizen of the weeded plots? Yet she is welcomed still in some New England yards. The dusty miller is a cousin to them both, that is as often found at large as in a garden close.

"Patience" is a plant upon Josselyn's list that I cannot identify, but whatever it was, it stood for a Puritan virtue, and the Fathers needed plenty of it. It was long before I could discover what the old herbalist meant by "white Satten," but that has come to light at last. Botanists call it *Lunaria*, but on account of the gleaming purity of the partition of its pods Elizabethans knew it as "maid's honestie." But the dissenting folk had a name for it flavored with a bit of characteristic irony,—"Pope's money." To this day New England children use the round and silvery septa for play coins, because, you know, "you must have a silver penny to get into fairyland."

They are all blooming still, these centuries later, in the rocky little gardens of Marblehead that tumble toward the sea, in Salem's tranquil dooryards, and inland around the elm-shaded houses of ancient towns. But runaways a-plenty crop up here and there, along the rocky shore, or between the very cobbles of the street. Like children who throw off their shoes and stockings and go rollicking away, they have broken bonds;—hollyhocks, motherwort, feverfew, camomile, "pussley," costmary, Kenilworth ivy, snapdragon, bugle, and butter-and-eggs.

FOXGLOVE, IMPERIAL FLOWER

Then, as now, among the first of Colonial flowers

Up in the sea-meadows, among the waxy leaves of the bayberry, you will find scarlet pimpernel, "escaped," starring the grasses. I walked there one day with the Captain, when a fist of black cloud was towering up from the southeast, where Nantasket lay, a golden streak, lulled in the last beams of an autumn sun that the storm would soon blot out. It was the "equinoxials" brewing, the Captain promised me with satisfaction. "Look at the pimpernel," he said.

"It knows. These flowers have a way of telling."

For it was shutting there, before our eyes. Though the little pink sand-spurrey remained wide open to see, one by one the little scarlet stars were winking out. And that is why the Captain, and the generations of sea-going folk behind him, call it "poor man's weather-glass."

They had a happy fancy for flower names, those forebears who have come to stand, to us, for austerity. A sly fancy, sometimes, for that little lavender mint my grandmother called "Gill-over-the-ground" went in New England, too, by the names of "marry-me-quick" and "kiss-me-at-the-gate!"

In the Captain's garden grew the handsomest aconite I ever saw, the great purple cowls, well called monk's-head, blooming intensely against a laughing sea. For the dark secret of death running through its veins, it was known long ago in the Old World as a witch's simple, like henbane, belladonna, poppy, hellebore, and hemlock. But in New England's history, blotted though it is with one dark stain of witch-craft hysteria, I find no accusation against any one for "trafficking in herbes." Quite otherwise, the ill-famed aconite bore here the happy name of "cupid's-car."

OLD-FASHIONED DOUBLE HOLLYHOCK

Many of these were planted and tended by the hands of the dames of the ancient Colony

But there were flowers that grew in those Colonial gardens that could work white magic, and woven into a little jingle their names are a song to remember together with the thought that once Puritan children chanted the verse at their play.

"Marigold, betony,
nettle, and squill,
Peony, dittany, basil,
and dill."

Perhaps the Puritan maid put a bit of basil in her dress to win her sweetheart, after the old custom, and sweet alyssum and mignonette were flowers of sentiment then as now. There must have come many fancies, now forgotten, with such dainty posies as lady's-smock and heart's ease, stock, crocus, and musk geranium.

As time went on and life grew easier, more and more were flowers grown for their charm and the pure joy of beholding them. Tulip, narcissus, jonquil, grape hyacinth, gillyflower, Canterbury bell, larkspur, and Venetian sumac (that we now call smoke-tree) came to delight the eyes of ladies in lutestring gowns and gentlemen in flowered waistcoats.

DAINTY GILL-OVER-THE-GROUND

Also known by several other romantic names

The pride of great-great-grandmother's garden was often her "ditander" or "burning-bush" that now goes by the more accurate but unlovely name of "gas plant." On a still moist evening the master of the house might strike a spark from his tinder box and ignite the gas exhaled from the stem below the flowers, for the surprised entertainment of his guests.

A few of those gardens, as chaste and stately as the houses that looked upon them, remain to us in their perfection. Such is the Ropes Memorial Garden, on Essex Street in Salem, laid out in the old formal style with hedges for borders, and central flower beds of the jumbled, strong bright colors that the older ages loved. Here, by the terms of the Ropes' bequest, botanical lectures are delivered amidst the flowers, in the style of Linnaeus's day. The Essex Institute maintains within its sombre enclosures an old-fashioned botanical garden, and Hawthorne's house on Ward Street still keeps its garden plot.

One might spend years antique collecting after eighteenth-century and earlier flowers, and still not come to the end of one's quest in New England. "In some forgotten garden ages back" bloomed flowers of quaint charm whose descendants may linger on today, in little towns nestling under the hills, and seaports clinging to their unfriendly cliffs. And I often remember the scarlet pimpernel, and all the Captain taught me. This flower is the type and essence of all those old blossoms,—little and modest, but secretive and wise in things I have yet to learn, and I close my books, repeating an old prayer:

"Arise up, pimpernel, and go with me,
And God bless me,
And all that wear thee.
Amen."

THE HEATH HEN, SACRIFICE TO CIVILIZATION
One of a race of birds once numerous, but with now only a few survivors on Martha's Vineyard

Nature in New England

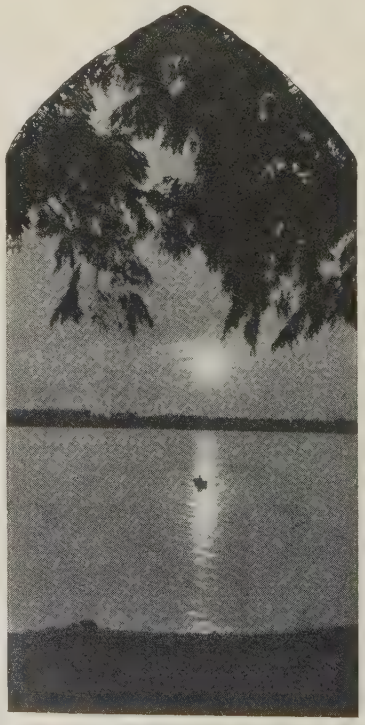
Preservation of Her Open Spaces a Vital Issue

by Charles Sumner Bird, Jr.
Chairman, Massachusetts Committee on Needs and Uses of Open Spaces

"WHEN the hunter riseth in the morning and he sees a sweet and fair morn and clear weather and bright, and he heareth the song of the small birds, which sing so sweetly with so great a melody and full of love, each in its own language in the best wise that it can according that it learneth of its own kind. And when the sun is arisen he shall see fresh dew on the small twigs and grasses, and the sun by his virtue shall make them shine. And that is great joy and liking to the hunter's heart." So said Count Gaston de Foix, in 1500.

"Have you ever," writes Mr. John B. Burnham in a brilliant essay on conservation's debt to sportsmen, "stopped to think that this love of Nature is a comparatively new thing in the world? . . . The writings of the ancients show that mankind feared or hated what we now love: hunting was battle, mountains and forests were terrifying, the sea hostile, Nature an enemy . . . . . The change in man's attitude toward Nature is one of the greatest of all spiritual advances and compares with the change from paganism to Christianity. It provides the antidote to our complex civilization, the means of preserving our mental and bodily health." And let us be sure the tide has turned in time.

Well, after all there is a fairly good reason for the change in man's attitude to Nature. For a period variously estimated at between twenty thousand and fifty thousand years man had been on the mat with Nature in a life and death struggle for the wherewithal to fill his stomach, which, no doubt, had been created empty in order to prompt man to the exertion of mind and body through which he was to develop. With the coming of the industrial age man emerged from his long bout a decisive victor over Nature as far as the necessities of his existence are concerned. And it is to be feared that man did not behave like a sportsman. He did not "keep his pride under in victory" according to the code of honor of a sportsman. He gloated over his beaten foe and set himself to deface her with the ruthlessness of a pig in a rosebed. He squandered Nature's beauty with the insensate prodigality of a drunken sailor. And the orgy has by no means passed. Bill-boards and all the accompaniments of the "motor slum" spawning its slimy trail over the face of the countryside stand witness that the spiritual advance is still subject to grave lapses into bawdy hideousness.



SUNSET AND EVENING STAR
Night comes to Lake Champlain at Swanton, Vermont

As he conquered Nature man's destructiveness seems to have increased. Who could have believed that he would have succeeded in completely exterminating the beautiful passenger pigeon which flourished in billions in North America in the last century? Or, again, the heath hen which was so numerous that a clause used to be inserted in the agreement between farmers and their hands that the hands were not to be fed on the birds more than three times a week. In spite of heroic efforts to preserve the last of the heath hens, there are today only a few known survivors.

As far as his own species goes it is too soon to say—in spite of "the Spirit of Locarno" and other expressions of brotherly love—that man has definitely decided to abandon the wholesale destruction of his fellow-creatures as an outlet for his passions and greed. But as far as Nature is concerned all civilized peoples are today genuinely anxious to conserve her beauties—for which man can provide no synthetic substitutes or colorable imitations—and to use them to the well-being of his Soul, Mind, and Body.

A SPOT WORTH THE SAVING

Campbell Falls in Massachusetts-Connecticut Interstate Park

It is recognized today that beauty is not a luxury to be cherished by long-haired aesthetes but an absolute necessity to the complete life of every normal human being. The man who does not crave the beauties of Nature has a twisted soul and should be an object of pity; and, if he should be the slave of a blind commercialism which impels him to destroy for others the beauties of Nature, he is a bad citizen. Every problem of importance today is common to all countries; and England, the cradle of the Industrial Age, faces difficulties corresponding to those which Nature-lovers in America are mobilizing to solve. And it may be said here that the sooner this mobilization on as large a scale as possible is consummated the sooner will the ravages on the face of Nature be stayed. Today the army of Nature-lovers consists of too many units operating independently. The first step towards a better state is the creation of a General Staff to conduct a scientific campaign. And this is particularly true of New England as a whole.

Speaking before the Northeastern Bird Banding Association recently, Professor R. T. Fisher stressed the need for a change in our treatment of the wilderness if our forests and their wild life are to meet their highest need. It is wiser—even from a commercial standpoint—to take Nature into partnership than to treat her as an enemy to be blindly looted. Her treasures can be won only by sympathetic intelligence and scientific conservation.

Can Democracy conserve the beauties of Nature? Hitherto such large-scale conservation as has been achieved in America has been won by the heroic efforts of individuals,—men like Theodore Roosevelt, George Bird Grinnell, William Dutcher, and George Shiras, men to whom we can apply the honorable title of Sportsmen-Statesmen. And their example has been followed by other public-spirited citizens who have given lands for the benefit of the people. Many of these gifts stand as a memorial to some beloved relative. And surely there are few more appropriate ways of honoring the memory of a dear one than to give in his or her name a spot which will provide beauty, recreation and health for those who come after.

What had happened in other countries? What was the origin of their public forests and parks? The establishment of such great parks as Versailles, St. Cloud and Chenonceaux in France, the great estates of Bavaria and Germany, all considered to have represented a deplorable extravagance at the time, have all proved an heritage of inestimable value. These historic extravagances of bygone aristocrats have proved a priceless boon to democracy. But, in turn, has democracy the vi-

C. H. BROWN

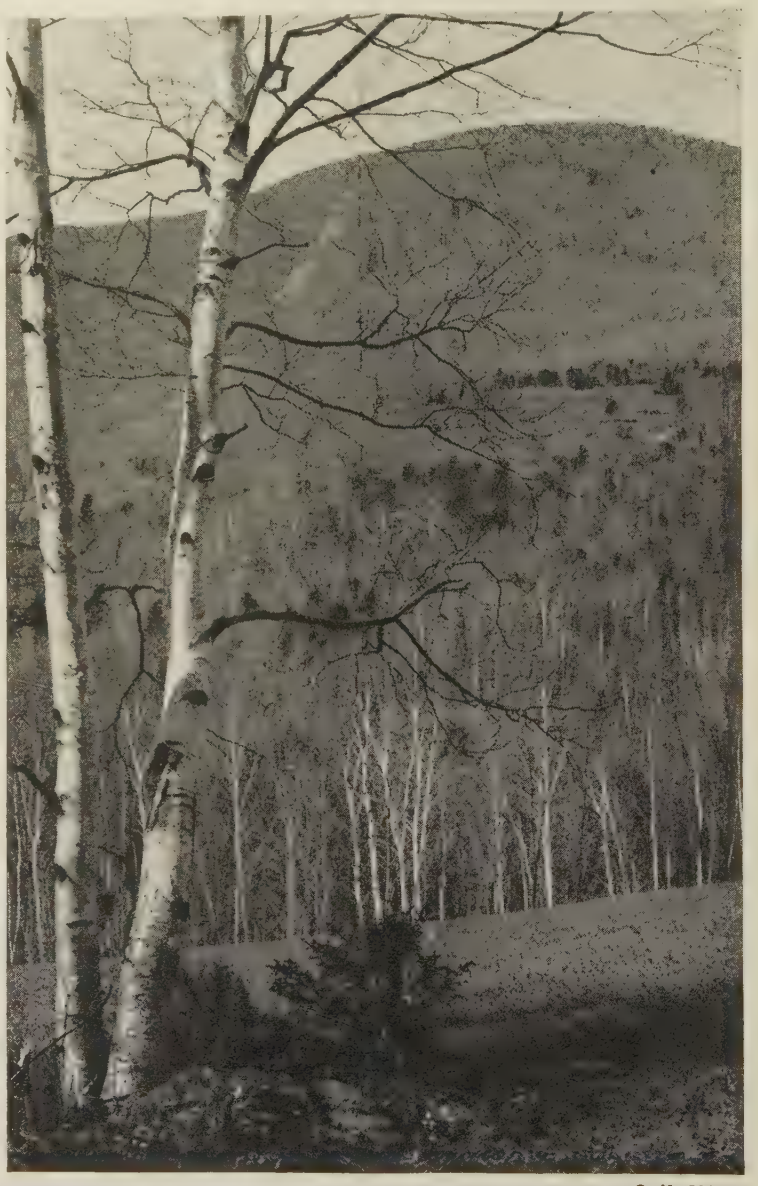
A CAMP BY THE SIDE OF THE LAKE

May we assure that such privileges are kept to all Americans that they may seek open spaces

sion, the initiative and the leadership to conserve on an adequate scale the treasures of Nature for the benefit of the people?

According to statistics,—if they can be regarded as any true measure,—7.72 percent of the land area of the United States is in public parks and forests. What of New England? New Hampshire, by virtue of the White Mountain National Forest, has 7.77 percent of her area in such a classification. Rhode Island has 2.27; Massachusetts, 2; Connecticut, 1.25; Vermont, 0.52; Maine, 0.17.

Again to draw upon Professor Fisher, he tells us that, when the Pilgrims landed, eight million acres of the heart of New England were virgin forest. Softwoods mingled with hardwoods to clothe the country with rich primeval forest harboring long-lived trees of large size. The wild life resident in this unspoiled handiwork of Nature was abundant in species and individuals. With almost incredible energy the inland settlers transformed a land about ninety percent virgin forest into one more than half farm and pasture. A century of this, and then the four decades from 1840 to 1880 saw Nature again tenant, spreading a second carpet on three quarters of this land. In the last thirty years the saw-mill and the forest fire have converted this area into a wilderness of small and inferior hardwood stands.



C. H. BROWN

MOUNT GREYLOCK THROUGH THE BIRCHES

One of many beautiful heights New England has for a world's playground

What of the wild life population during these disturbances? In that first century of man's tenancy the grass and ground creatures must have enormously increased, but the birds of the big woods and the larger carnivores sought other quarters according to their needs. The last three decades of the nineteenth century,—before the automobile placed all covers within the range of increasing thousands of guns,—there arose the greatest area of ideal cover and solitude for grouse and woodcock, and both these species flourished as never before or since.

Since 1895, from land formerly field and pasture, twelve billion feet of lumber with a value of $400,000,000 have been cut in Massachusetts, New Hampshire and southern Maine. This supported a large population, but the pine timber has dwindled and a new forest environment of infinitely less economic value and probably the least favorable to wild life that the region has ever known is being created over immense areas. As man depletes Nature she gives him ever cheaper stuff. With the increasing thousands of acres of impoverished hardwood, much bird life of forest and field cannot flourish, however well protected.

New England has climate, scenery and variety of landscape entitling it to be the summer playground of the nation. Two billion and one half dollars is the annual national expenditure for outdoor recreation. New England gets three hundred million dollars of this, according to estimates three years ago. This has undoubtedly grown to nearer a half billion. This is New England's greatest cash business. The value in dollars of the reduction in the wastage of human health and life which New England wins by her Open Spaces is considerably in excess of the sums which she spends in acquiring these health-producing facilities. So Beauty pays two sorts of dividends, one in cash,—a very large one,—and one in health, well-being and pleasure worth many times the cost.

"The prime objective for which we should strive is to endeavor to make available for the average American outdoor recreation with all that it implies, and to preserve our facilities for outdoor recreation for our children and children's children", ex-President Coolidge

(*Continued on page 348*)

ROBERTS

DESCENDANT OF A LONG ILLUSTRIOUS LINE

MEN STILL "GO DOWN TO THE SEA IN SHIPS"

THE SILVERY HARVEST

What Its Oldest Industry Means to New England

by Katherine Parker Thoré

GLEAMING, sweet-fleshed fish dart like twisted arrows of light through the Atlantic. Iridescent shapes flash in curling silver ribbons. Wide-mouthed little creatures glower like baby devils. Slim, wet bodies, scaled in mother-of-pearl, scud through the clear green waters, fathoms deep. In the long blue furrows of the upper water they move in shining rows. The age-old harvest of the sea is waiting for the fisherfolk.

More than three centuries ago, when men followed the coast from Passamaquoddy Bay,—which in the Indian tongue means "plenty of pollock",—they found the sea swarming with haddock, pollock and mackerel, and the cod living thick off-shore. The colonies survived because of the sea's harvest, and the work of founding a republic began at the rough "stages" where the fish were dried. In Gloucester, the greatest salt-fishing port in America, in what is known as "Stage-Fort Park", is a tablet which states that "since 1623 the Fisheries, the oldest industry in the Commonwealth, have been uninterruptedly pursued from this port." In the sixteen-hundreds the Pilgrims exported salt fish to England and fresh fish by dogsled to Montreal. This primitive beginning has grown into a fifty million dollar business in New England, and in Gloucester today are acres of wharves white with salted fish drying on low racks or "flakes" to become food for thousands.

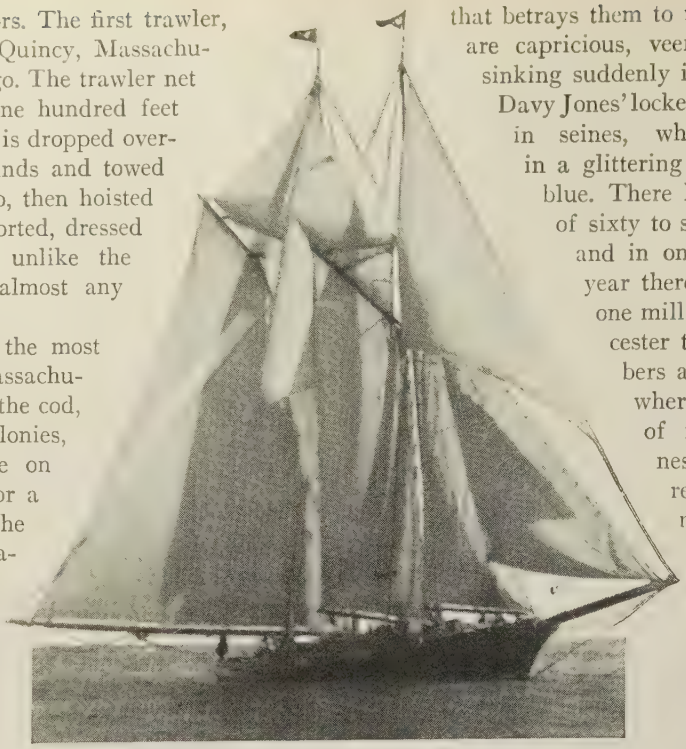
It used to be that from Cape Cod to Maine men rowed out to their lobster pots in the dawn, and the fishing fleets, with drooping sails, waited for the wind. Now all along the coast go the gasoline driven boats, for gasoline as an auxiliary to sail-power has revolutionized shore fishing. Once men were gone six months to the Banks for cod; now the trawlers, with radio reaching from deck to shore, make swift and lucrative trips in six days.

"Ground fish" are cod, haddock, pollock, cusk, hake, flounder and halibut, caught at the bottom of the sea, several miles from shore. Some fishing crews yet use the old-time way of fishing over the rail with hand lines from a schooner. Larger fishing vessels carry a number of dories or small boats, which are set adrift at the fishing grounds with one or two fishermen in each, and with buckets of trawl lines on which are five or six hundred hooks baited with herring or squid. The danger and cold is all in the day's work, for theirs is the call of adventure and the lure of the sea, and the prospect of a purse-full of money at the end. Sometimes there are tragedies, when the fog sweeps in and shuts each little boat blindly into a drifting pocket of silence.

The most modern method of deep sea fishing is with the trawler, a wooden or steel vessel from one hundred to one hundred and fifty feet long, propelled by steam

engines or crude-oil motors. The first trawler, the *Spray*, was built at Quincy, Massachusetts, twenty-four years ago. The trawler net is a large conical bag, one hundred feet wide at the mouth, which is dropped overboard at the fishing grounds and towed behind for an hour or two, then hoisted on board and the catch sorted, dressed and iced. These boats, unlike the schooners, can fish in almost any weather.

Haddock and cod are the most popular ground fish. Massachusetts pays loyal tribute to the cod, the first export of the Colonies, and in the State House on Beacon Hill has hung for a hundred and fifty years the wooden image of the "Sacred Cod". The cod are migratory fishes. On the Maine coast they leave the shore in the autumn, reappearing in the spring as regularly as the dandelions. On the Connecticut shore they make excellent winter fishing. The cod are a greedy folk, eating anything digestible and smaller than themselves, crabs, starfish, even great sea clams, digesting the soft part and ejecting the shells. They browse, like mermen's sheep, upon the Irish moss and algae along the ledges. They are one of the most prolific of fish, a mother-cod producing from five thousand to a possible two million eggs. Cod spawn in the open sea, the eggs, like spawn of pollock and haddock, floating on the surface on minute oil globules.



HOMEWARD BOUND AND HEAVY LADEN

Gloucester fishing schooner breezing toward port, rich with a silvery cargo

Mackerel and swordfish are caught at the surface. Mackerel are shore-loving fish, one of the swiftest swimming in the sea. They move in shimmering, close formation, which at night gives a phosphorescent fire that betrays them to the watching boats. They are capricious, veering north or south, or sinking suddenly into the crystal depths of Davy Jones' locker. They are usually caught in seines, which imprison the fish in a glittering heap of silver and steel blue. There have been single catches of sixty to seventy thousand pounds, and in one day in August of last year there were landed at Boston one million pounds, and in Gloucester two million. Large numbers are placed in the freezers where, with modern methods of refrigeration, the sweetness and freshness may be retained for months, for mackerel, like swordfish, are a summer catch.

Over a hundred craft from Massachusetts ports, beside many from Maine and Connecticut fishing towns, engage in swordfishing. Swordfish steaks are among the greatest delicacies of the marine harvest. The average weight of this fish in New England waters is two hundred pounds, with a body length of eight feet and a three-foot sword. They are ruthless fellows, coming up under a school of mackerel or herring and slashing with their swords like robber barons. Very long ago a poet wrote of them that "Nature gave them a sword but left unarmed the mind." They stab madly at large boats, and they come to their end by going serenely to sleep on the surface of the sea with their great dorsal fin jutting up like a sail. This black triangle makes them visible for a mile or more, and the chase with harpoon and lance has something of the thrill of old whaling days. More than twelve thousand of these fantastic but delectable fish were landed at Massachusetts ports last year by the swordfishing boats.

H. W. SPOONER

DRYING CODFISH IN GLOUCESTER, MASSACHUSETTS

From this port fishing has been carried on continuously since the year 1623

Passamaquoddy Bay is the natural habitat of the herring. These living bits of silver are the sardines of commerce. They are canned in factories in Eastport and other coast towns, making an inexpensive and delightful food, recognized now as equal to products from across seas. They are caught by fishermen in the old fashion of weirs or traps along the shore, and in such quantities that last year the sardine industry in Maine

alone amounted to more than ten million dollars.

Maine has made the tiny, silvery smelt a harvest of decided commercial importance. The smelt is of predaceous habits, eating very young fish, crabs and worms. Some say that part of its diet is the sweet-grass used by the Indians in basket weaving, and that the fish have the vague, fragrant odor of the grass. Their flesh is particularly sweet and delicate.

Unhappily many New England factories have polluted rivers that once teemed with flashing, sweet-meated fish, and insurmountable dams have barred mother-fish from reaching their breeding grounds. This is shown in the lessened numbers of Atlantic salmon, shad and striped bass, although there is a brighter side in the return of an advance guard of the gamey and delicious blue-fish to their old haunts.

There is many a slip between the jellied masses of eggs, called "spawn" and the glittering, slippery fishes that are a part of our New England harvest. Nature is sometimes careless and these tiny eggs, these infinitesimal beads of life, slide through her fingers. Hundreds of millions of potential salmon, trout, cod, flounder, pollock and haddock and the aristocratic lobster would perish were it not for the government hatcheries. The eggs of female fish are fertilized after they leave the body by the life-giving liquid, technically called "milt", of the male fish. Only a portion of the eggs become impregnated, or, if fertilized, live. The delicate eggs are eaten by enemies, frozen upon beaches, killed by polluted water, lost by millions in the oozy bottoms of the fishing boats. If they develop into "fry", tiny fish, they are still in constant danger. With cannibalism in their own watery world, and with inroads by nets and fishing lines, there is little increase, and with some species a slowly decreasing supply.

During the spawning season of the cod, trained spawn-takers go out in government boats and salvage the eggs which ooze out in the bottom of the fishing vessels, or use the method known as "stripping", by which through gentle expert pressure along the sides of the female fish, the eggs are expelled. They are placed in a damp receptacle and the milt, procured in the same way, is poured over them and stirred in thoroughly. In a few moments they are emptied into the sea, where a large proportion will hatch, or taken to the government hatchery and placed in automatic tidal boxes where ninety per cent will be saved. Fish are hatched with a tiny sac of food elements, a "yolk-sac", as a sort of kindergarten lunch-basket. This is absorbed in ten or fifteen days and the baby fish begin to feed upon the invisible food of the sea. The Boothbay hatchery in Maine plants about one million young cod yearly.

A government hatchery is a fascinating and educational place. Grotesque, spiny forms peer from their glass houses like goblins. Exquisite creatures in silver mail flash across their crystal windows, and tidal boxes hold masses of the tiny life that may some day be thirty-pounders. In connection with the state directors of fisheries, the government hatcheries locate new fishing grounds, study fish diseases and artificially propagate and plant millions of young fish.

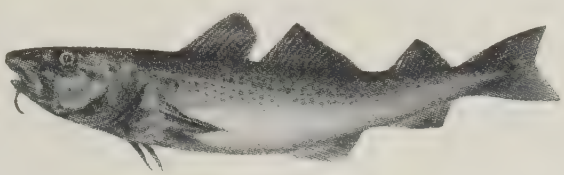
ROBERTS

BY MANY A NEW ENGLAND WHARFSIDE

The steam trawler has rapidly replaced the fishing schooner of former days

Maine is the largest lobster-producing state in New England, although Massachusetts, Connecticut and Rhode Island realize the economic value of these quaint sea beasts in armor, whose flesh is our modern equivalent of nightingale's tongues. Gone are the days when the "lobster man" sold them in New England villages for twelve cents apiece. New England has been indulging in a marine form of "killing the goose that laid the golden eggs", both by permitting the killing of brood stock, and by not strictly enforcing the "short lobster" laws. It has been estimated that about one egg in eight thousand grows to maturity after hatching. Fish Commissioners warn fishermen that it is wanton and short-sighted waste not to return female lobsters studded with eggs to the sea or place them in "pounds" until the eggs are ripe, when they can be scraped off and placed in hatching jars. Rhode Island has a "rearing station" for lobsters. Maine has had excellent results in returning egg-bearing lobsters to the ocean that the eggs may hatch in their natural environment. The Maine Commission also advocates the permanent closing of certain bay waters for breeding grounds. There are five thousand lobster men in

(*Continued on page 349*)



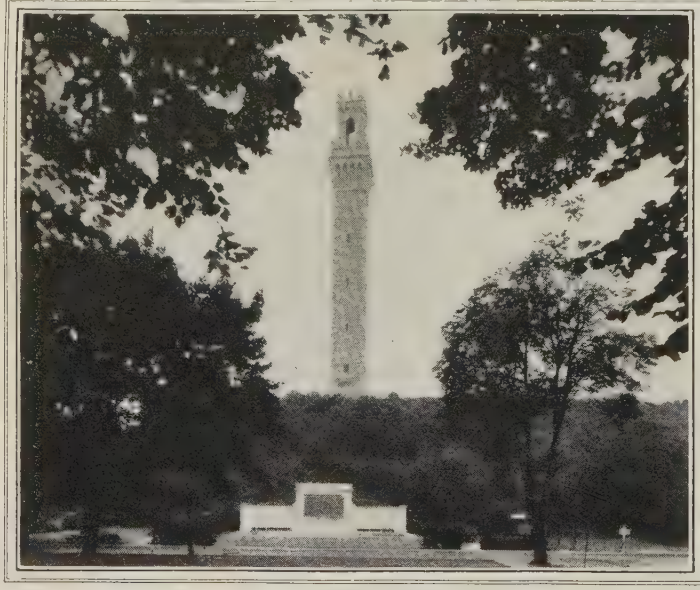
THE "SACRED" COD

In gold encrusted effigy it hangs in the halls of the Massachusetts Legislature

Along the shore of the lake the birches lean out to see their reflections, which the winds from the hills cause to bob and dance

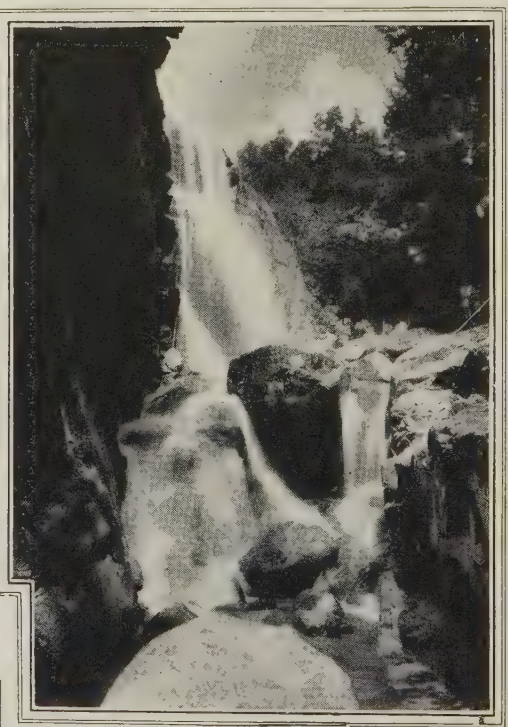
O. M. POOLE

(Below) One of the daintiest waterfalls in New England is in the Flume at Franconia Notch, in the New Hampshire hills



PUBLISHERS PHOTO SERVICE

This picturesque tower and bronze plate commemorate the landing of the Pilgrims at Provincetown on Cape Cod



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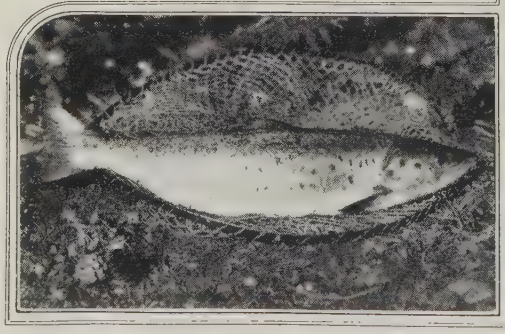


D. WARREN BOYER

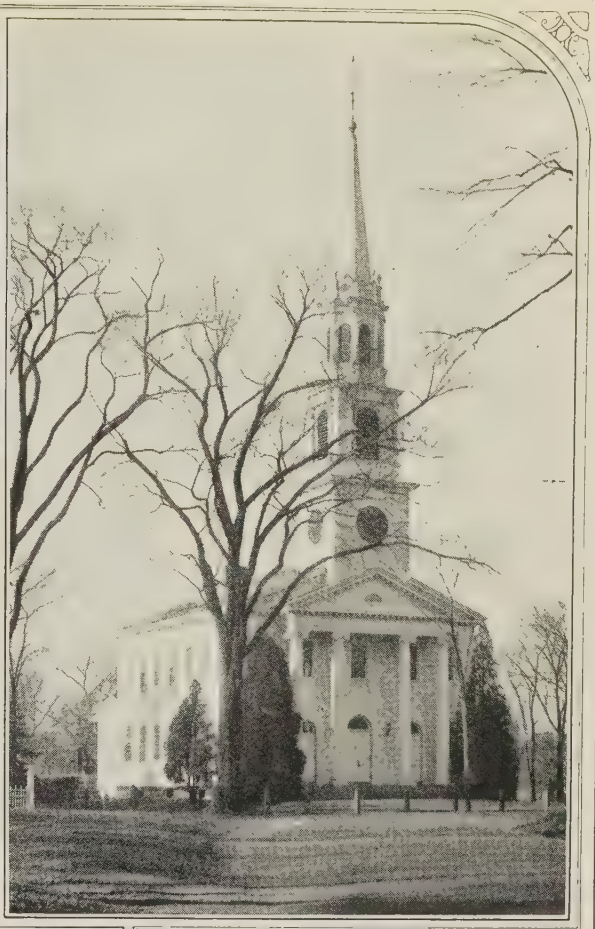
L. M. CHACE

DOROTHY E. PLETCHER

Three of the fauna of New England—a victimized salmon at the left, the fisherman's pride; a "wee, sleeckit tim'rous beastie" in the center; and an iron elk, who overlooks the Mohawk Trail in Massachusetts

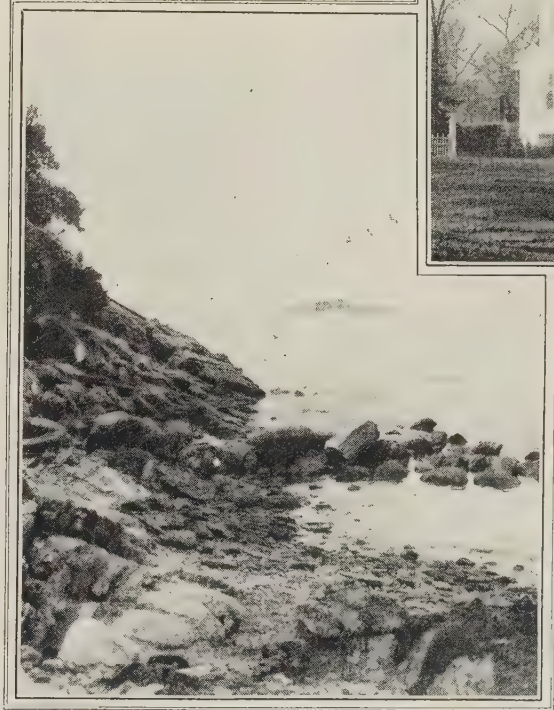
PUBLISHERS PHOTO-SERVICE

A beautiful stretch along the Farmington River in the heart of the agricultural section of Connecticut



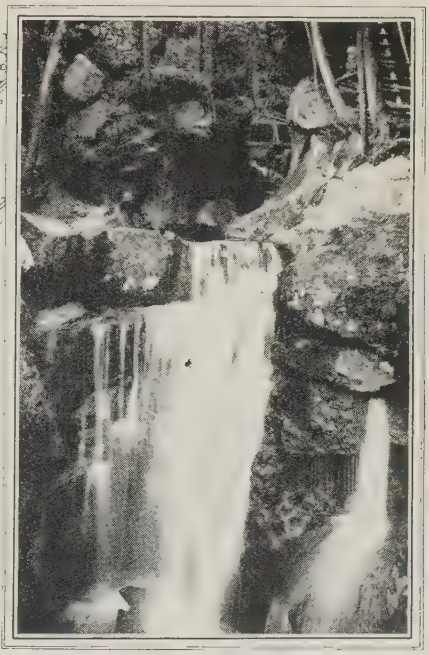
D. WARREN BOYER

Such lovely churches are typical of New England, this fine example of the early colonial being at Old Lyme, Connecticut



On the Maine Coast there are many beautiful stretches of rugged shoreline, making it a mecca for the lover of the out-of-doors

D. WARREN BOYER



PUBLISHERS PHOTO SERVICE

D. WARREN BOYER

(Right) Paradise Falls of the Lost River in New Hampshire's White Mountains. It is a reservation popular with visitors

(Left) Here we have friend screech owl, a gentle denizen of the forests

WHEN WINTER IS KING

Snow is at its best when gleaming from thick-crowding branches. New England roadways look like this

The Forests of

Their Beauty and Worth Demand Protection

New England is rich in historic associations. It has forests, also. They adorn its roadsides, its hills, its mountains, its lakes, and its seashores. New England's charming villages, its picturesque rural architecture, its tall spires, its well-painted houses, its tree-lined village streets set it apart from the rest of the country. It has distinction and great charm.

People of this land do not go much to live permanently in other parts of the country, except for business reasons. When they do go they come back home as often as they can. They love the cool summers and the long winters with clear, cold sunshine. Rural New England is hardly surpassed for loveliness. Three-fifths of its hill-covered surface is natural forest land. Only the valleys are used for agriculture and towns. These occupy barely thirty per cent of the whole. There are beautiful lakes everywhere.

New England is a forest country, with its pines and its spruces, its beeches and hemlocks and fir trees, its oaks, birches and sugar maples,—magic word is maple sugar, New England's most distinctive forest product. New England forests, however, are largely of the evergreen type. They sway in the wind and sparkle in the sunshine both summer and winter. Did you ever go into the woods in winter on a cold, clear day when millions of tiny icicles are hanging from every tree? As these icicles tinkle in the wind, tinkle, tinkle all day long, ten thousand musical instruments,—this is not surpassed by the Hallelujah chorus. Is it any wonder that New Englanders love to come back?

The outstanding forest in New England is the White Mountain National Forest. During seventeen years, since 1911, the Federal Government has purchased forest land in the White Mountains. It has acquired now 514,000 acres or 803 square miles. Much of it is virgin forest. There are 61,000 acres in which an axe was never used, and there are 240,000 acres more with fine growing forests, some of them so lightly culled years ago as to be practically virgin. The entire Presidential Range, including all of Mt. Washington except a little hotel site at the very tip-top; nearly the entire

WALTER R. MERRYMAN

VIRGIN SPRUCE

New England is awakening to protect such stands as this. State, city and town forests are increasing

New England

by Philip W. Ayres

Forester, Society for Protection of N. H. Forests

KIMBALL

THE FOREST PRIMEVAL

One of the few stands of virgin timber remaining to the six states. Yet 10,000,000 acres stand idle!

Franconia Range; the Tamworth Mountains including Chocórua, and much more,—mountain top after mountain top as far as the eye can reach,—these are all in the White Mountain National Forest. Fortunately, the Government came into possession before the last of the primeval forests were cut off. Any one may find these uncut wildernesses who will take half a day's time and a moderate hike to come into them. To whiz through in an automobile is not seeing New England.

There are, to be sure, great gaps in the White Mountain Forest covering areas not yet purchased, because not yet offered for sale by their owners. Gradually these will come in as the areas can be acquired at fair prices. The present holdings comprise sixty-three percent of the original plan. Already the White Mountain National Forest has spilled over into Maine, where 32,000 acres have been acquired. Recently Federal purchase has extended into Vermont where 100,000 additional acres are authorized, and where ultimately 300,000 acres will likely be included. Come to New Hampshire, come to Maine, come to Vermont, if you want to see real forests! You can tramp through them for days and days.

There are only six states east of the Mississippi River that produce more lumber than they consume. One of these is Maine. Have you seen its indented shore lines with spruces and firs descending even to the very edge of the sea? Do you know the forest glories of Mt. Desert Island and the National Park that is established there? Did you ever climb Mt. Katahdin in northern Maine, which is said to be the most splendid mountain mass in all New England? The region has been deforested, and partly burned over, but not beyond recovery. The State of Maine should make it into a State Park to preserve for future generations.

Have you climbed Mt. Mansfield in Vermont? You can see nearly the whole of New England from there. On one side the length of Lake Champlain stretches away at your feet, with the Adirondacks rising like celestial mountains through the mist; and on the other side, sixty miles away, the blue ranges of the White Mountains stand boldly against the sky. Do not miss it. There are an automobile road and a little hotel up there. After that you will want to

MAIN STREET

Through the trees, which arch over the roadway to form a canopy, white houses peer to welcome you

see the sun rise from the top of Mt. Washington. Often it does not rise, the mountain being covered with clouds, but the experience is a great one just the same. Look straight up into the sky from the seashore for a mile and a quarter,—that is as high as Mt. Washington, and you have to go through miles of woods to get there. You cannot reach Katahdin or Mansfield or Mt. Washington without going through miles of woods.

Three New England States, New Hampshire, Massachusetts and Connecticut, have organized systematic campaigns to save the forests that border their highways. Already achievement is marked. New Hampshire with vigorous help from the women's clubs and the Society for Protection of Forests has purchased a 6,000 acre forest in Franconia Notch including the famous profile, the Old Man of the Mountain. This forest extends for seven miles along the Daniel Webster Highway through the heart of the White Mountains. Crawford Notch also belongs to the State. In Massachusetts the State has acquired the forests along the old Mohawk Trail which now is a wonderful highway. The State of Connecticut is dotted with beautiful highway forest reservations.

LEADING THE WAY TO REFORESTATION

These boys are replanting old pasture lands. If New England is to avoid a timber shortage this is what every native must do.

Even Rhode Island, which is said to be mostly under water, has some admirable forests. Its intelligent people do not propose that the non-agricultural land shall remain idle. Would that the rest of New Englanders were as thrifty, because there are in the six New England States, located for the most part south of the high mountain country, nearly ten million acres of idle forest land. But New England is not going to continue to pay enormous freight bills on lumber from the Pacific Coast through the Panama Canal forever. Her people are beginning to rub their eyes and see that the freight bills on lumber, amounting on ocean freight alone to eighteen dollars per thousand feet from Oregon to Boston, aggregate ten to fifteen million dollars a year on importations. All this can be saved by growing timber on the idle land at home. New England proposes to see to it that it raises its own timber. Tax laws are

(*Continued on page 350*)

SCARRED CRAWFORD NOTCH, NEW HAMPSHIRE, IS A WELL-KNOWN SHOW PLACE

YET WITHOUT THE FOREST COVER, ITS BEAUTY WOULD BE A DEAD THING

MEETING PLACE of the INSECTS

by Charles W. Johnson

BOSTON SOCIETY of NATURAL HISTORY

LYNWOOD M. CHACE

NEW ENGLAND is host to a wide variety of insects,—a veritable meeting place of the species found in different life zones, as the zoologists term them. Conditions along the southern coast, eastward to Plymouth, Massachusetts, and including Cape Cod, Martha's Vineyard and Nantucket, as well as the lower Connecticut River Valley, are favorable to southern species. This is known as the Upper Austral life zone, while the Canadian zone embraces northern New England, the more elevated portions of the Green Mountains, south to Mount Greylock, all of the White Mountains north of Lake Winnepesaukee, and the southeastern part of Maine, east of Mount Desert.

But New England does not limit its versatility to these two life zones alone. Mounts Washington and Katahdin hold species of the sub-Alpine or Hudsonian zone on their upper heights, and in the last twelve-hundred feet of their summits, strike into the Arctic-Alpine zone. There is, too, a wide area in which the northern and southern species overlap in a Transition Zone, in which are certain southern species which probably pushed northward at the close of the glacial period, while boreal species were receding still further north.

To the insect student there are several factors bearing on distribution in New England. The ocean acts to modify the temperature, permitting southern species to range north, while the cold waters on the Maine coast bring boreal species south. A spring-fed bog or swamp, lacking temperature extremes, is often host to insect residents from north and south. Adults from the colder clime, however, will appear in May or early June, and the southern species in July. In the overlapping zone an area of sandy or gravelly soil will harbor more southern species than that of heavy clay soil, partly due to the existence there of their food-plants. Many insects, such as the potato beetle and catalpa sphinx, have followed these sources of food supply far beyond their natural or original habitat, and deforestation, drainage, stream pollution and other results of settlement have affected normal insect distribution.

For the entomologist Mount Washington has long been a favorite collecting ground. Passing through the rich Canadian fauna at the base, where the natural conditions have been practically undisturbed, we enter near the timber line the sub-Alpine where in August are found the mountain fritillary, *Brenthis montinus,* and the wingless grasshopper, *Podisma glacialis,* two of the more striking species of this zone. At an elevation of about five thousand feet we reach the home of the White Mountain butterfly, *Oeneis semidea,* flying in July over this limited area of the Arctic-Alpine. The under sides of its wings resemble so closely the lichen-covered rocks on which it lights that when at rest it is scarcely discernible. It is to be hoped that entomologists will never collect it in such numbers as to threaten its extermination. While this species or nearly related species are found elsewhere, typical *semidea* is found only on Mount Washington. It has been selected by New England en-

WHITE MOUNTAIN BUTTERFLY
Showing under side of the wings

THE MOUNTAIN FRITILLARY
A striking, sub-alpine butterfly

tomologists, represented by the Cambridge Entomological Club, for the seal of their organization.

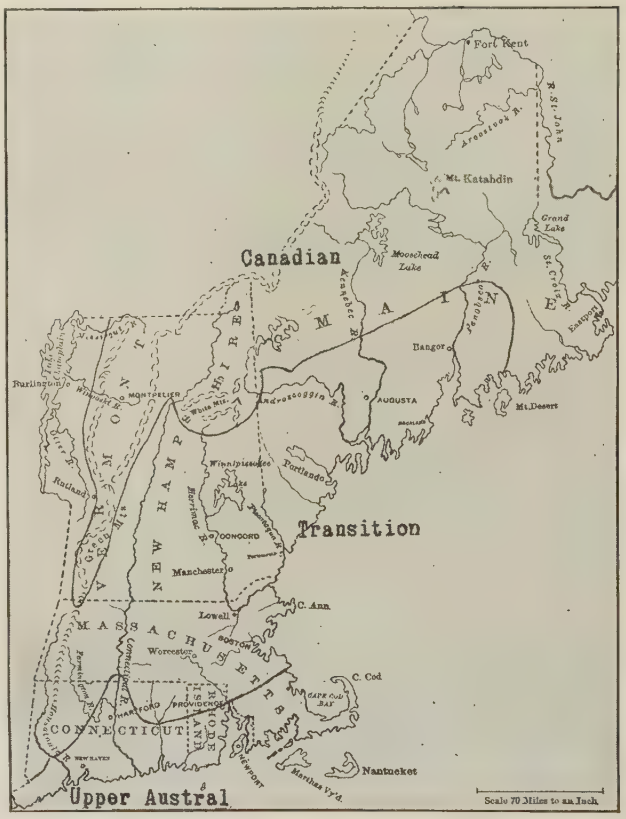
Another species, the Mount Katahdin butterfly, *Oeneis katahdin,* is found only on that mountain in Maine, at an elevation of from 4250 to 5000 feet. It was discovered in 1901, and differs considerably from the other species, being quite yellowish and usually with small black dots on the fore wings. A third species of this Arctic group is *Oenesis jutta* found in a cold bog near Bangor, Maine.

A little dark grayish moth, *Anarta melanopa,* that frequents the rocky summit of Mount Washington, is an interesting example of protective coloration, but the protective color afforded by the front wings when at rest seems to be ignored, for the Anartas are apparently very proud of the large yellowish white spots on their wings and immediately after alighting on a gray rock raise their front wings in a most coquettish way. The Arctic tiger-moth, *Apantesis quenseli,* a small species with black hind wings, is another circumpolar species found on Mount Washington. Three specimens, collected in the sixties, are in the collection of the Boston Society of Natural History, but on five trips to the mountain I failed to find it. I hope it is still there.

Among the Arctic beetles is the large black ground beetle, *Carabus chamissoni,* usually found hiding under the rocks and there are many other interesting Arctic-Alpine species. Under certain weather conditions, especially during a series of warm days when a moderate wind sweeps up the side of the mountain, immense numbers from the woods at the base fly to the summit, in most cases only to perish, for few can return to their real habitat before being overcome by a cold storm.

THE ST. LAWRENCE TIGER-MOTH

Slightly enlarged picture of this insect, frequently found on Mt. Desert



THE LIFE ZONES OF NEW ENGLAND

(Below) The great tiger-moth a beautiful insect of the colder climates

In the Canadian Zone are found many of the interesting and attractive species. The beautiful St. Lawrence tiger-moth, *Hyphoraia parthenos,* is frequently taken on Mt. Desert. In the one shown on these pages the hind wings are less clouded with black than is usual. The great tiger-moth, *Arctia caia* var. *americana,* is another beautiful species, circumboreal in distribution and varying greatly in different parts of its range.

A conspicuous and common butterfly of the Canadian Zone extending also into the upper part of the Transition is the white admiral or banded purple, *Basilarchia arthemis.* In southern New England is found the red-spotted purple, *Basilarchia astyanax,* a southern species that extends northward into the lower part of the Transition. Both occur in the Berkshires, where the hybrid of the two species known as *proserpina* sometimes appears in numbers.

In former years,—prior to 1870,—Massachusetts was the meeting ground of the southern cabbage butterfly, *Pieris protodice,* and the northern cabbage or mustard butterfly, *Pieris napi oleracea.* While the two were not often abundant, they are now apparently missing in the Transition area. Their former area is now overrun with the European cabbage butterfly, *Pieris rapae,* which is so prolific that parasites can hardly keep it in check. The struggling colonies of our native species therefore could not possibly contend with this species.

The periodical cicada, *Magicicada septendecim,* often called the "seventeen year locust" on account of each brood appearing every seventeen years, is a remarkable insect and wherever it occurs always creates

considerable interest, owing to its great abundance and the peculiar noise made by the male. It is interesting to note how closely its northern limit of distribution coincides with what is defined as Upper Austral Zone.

Brood XI, which I have called the New England brood, as it is confined to New England, is probably extinct. In former times it was locally abundant from near Deerfield, Mass., to Glastonbury, Conn., and eastward to Bristol County, Mass. The last recorded colony of this brood was in the town of Coventry, R. I., in 1903. It was probably destroyed by the cold wet June that prevailed that year, thus preventing it from breeding. Four other broods frequent New England. Brood VIII is confined to Martha's Vineyard.

THE BANDED PURPLE
A conspicuous and common butterfly found in the Canadian Zone. In the center are the male and female Ululodes quadrimaculata

RED-SPOTTED PURPLE
A lovely southern New England butterfly. A hybrid of this and the banded purple is often found in numbers in the Berkshires

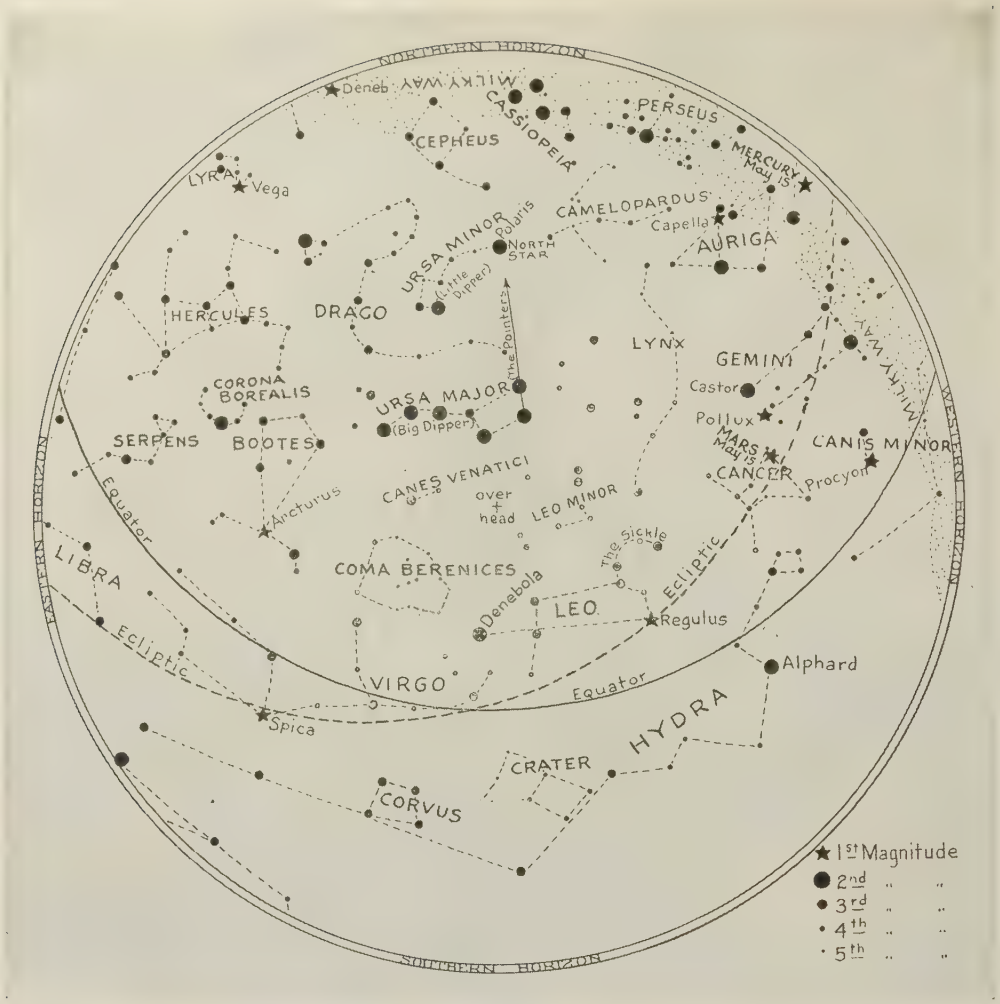
The main body of this brood occupies the western part of Pennsylvania and the eastern part of Ohio. It will appear again in 1934. Brood X, known as the great brood, as it covers the greatest area of any of the broods, is represented by a widely separated colony near Rutland, Vermont, where it is due again in 1936. Brood XIV is confined to Plymouth and Barnstable Counties, and probably entered New England by the old coastal plain. Its next appearance will be in 1940. Brood II, largely confined to the coastal plain, extends into the southwestern part of Connecticut, and may be looked for again in 1945.

The family Cicadidae is, strictly speaking, Austral. To find therefore a species in the vicinity of Boston that extends to the upper part of the Transition and in eastern Maine actually extending into what is termed Canadian, is a very interesting feature in distribution. I am referring to the little northern cicada, *Okanagana rimosa.* This is also found in the Transition of Nova Scotia and extends westward to Minnesota in the same zone. The common dog-day cicada, *Tibicen canicularis,* ranges from the Upper Austral to the Canadian Zone. The large southern cicada, *Tibicen auletes,* quite common at times on Martha's Vineyard, has been found as far north as Brant Rock, near Plymouth. The large wasp known as the cicada-killer, *Sphecius speciosus,* is confined to southern New England, two specimens taken at Middleboro, Mass., being the most northern record. The female wasp stores her nest with cicadas on which the young feed.

The ant lions, *Myrmeleonidae,* are a fascinating family. Their larvae are like little demons making funnel shaped pits in the dry sand in which they capture their prey. Emerton has studied the life history of *Myrmeleon immaculatus* from larvae obtained beneath a shelving rock at Peabody, Massachusetts. To protect the delicate pupae the larvae make cocoons of sand, which are held together by silken threads. It has also been taken in Boston, Petersham and Naushon Island, Massachusetts. The long-tailed ant lion, *Brachyneura abdominalis,* has been taken at Horseneck Beach, Orleans, Wellfleet and Springfield, Massachusetts. The adult, after alighting on the stalk of a plant, folds its wings so close that it is scarcely visible. The spotted-winged ant lion, *Dendroleon obsoletus,* is rare in New England. The little ant lion, *Cryptoleon signata,* has been taken in the Ipswich sand dunes.

There is another interesting family having long thread-like antennae with knobs at the tips. This is a case where nomenclature is sadly mixed. Mr. Nathan Banks informs me that in all publications to date the male and female are under different names. The female was first described, and is now known as *Ululodes quadrimaculata,* the male as *Colobopterus excisus.*

In this interesting and diversified region one can scarcely realize the magnitude of its insect fauna. In 1915 a conservative estimate of the number found in New England was fifteen thousand species, and there may be twenty thousand. In studying the life histories of the various kinds one must take into consideration that every species in its metamorphosis has at least four well marked stages, together with various periods between moulting known as instars. We have, therefore, over one hundred thousand different forms to study. Outnumbering as they do all other forms of animal life, I can quite agree with a friend who said that it would be a great convenience if the animal kingdom could be placed in two divisions—Zoology and Entomology.



TO USE HOLD OVER THE HEAD WITH TOP TOWARD THE NORTH
This map for use May 1, 9 p. m.; May 15, 8 p. m.; May 31, 7 p. m.

NEW ENGLAND *Views the* SKIES

Fifteen of the Country's Seventy Observatories Located There

by Isabel M. Lewis

In the United States there are more than seventy observatories and fifteen of these are in New England. Twelve are connected with universities or colleges. One, on Nantucket, at the birthplace of Maria Mitchell, the first woman astronomer in America, was built and dedicated by the Nantucket Maria Mitchell Association. Two are private observatories, one Mr. Seagrave's Observatory at Providence, Rhode Island, the other Mr. Harkness's at Springfield, Vermont.

Seven of the New England Observatories are in Massachusetts,—Harvard College Observatory at Cambridge, Boston University Observatory at Boston, Whitin Observatory of Wellesley College at Wellesley, Field Memorial Observatory, Williams College, Williamstown, Williston Observatory of Mt. Holyoke College at South Hadley, Amherst College Observatory at Amherst, and Smith College Observatory at Northampton. Connecticut has two observatories, Yale College Observatory at New Haven and Van Vleck Observatory at Wesleyan University, Middletown. The Ladd Observatory of Brown University is at Providence; the Shattuck Observatory of Dartmouth College is at Hanover, while the Observatory of Maine is at Orono.

At most of these observatories much of the time of the astronomical staff is devoted to the teaching of astronomy, yet we find that at Van Vleck Observatory, where there is a fine 20-inch refractor, there is time for stellar parallax work, which is essential for finding the distances of the stars. Also photographs of the sun have been obtained on many days, eclipse photographs have been taken and studied and other valuable work has been done, in addition to providing five courses in astronomy. Amherst, with its 18-inch refractor now reconditioned, is studying the variability of the light of asteroids and cooperating with the American Association of Variable Star Observers. Here also a number

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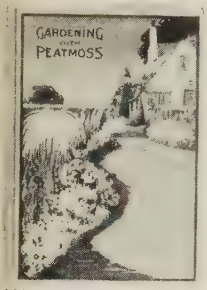

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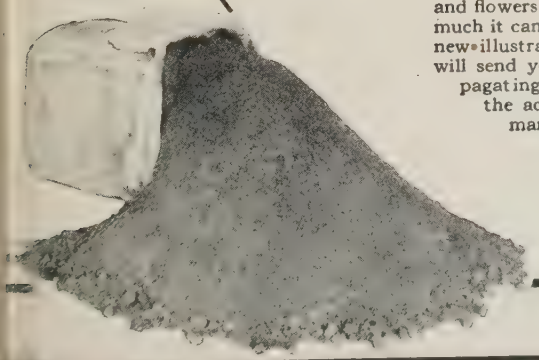

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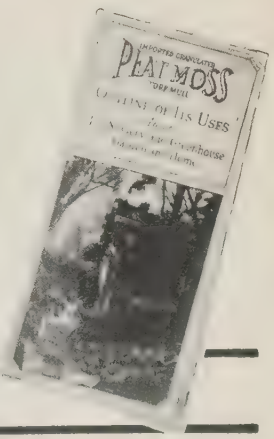

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of courses in astronomy are offered to students and, as at all these institutions, future astronomers are being trained for their life work. Many other students are taking courses in astronomy that bring them into close contact with some of the foremost astronomers of today. They are obtaining not only a knowledge of some of the great problems of astronomy and astrophysics, but, at the same time, training in a science that is of the highest cultural value.

At Yale Observatory, which is under the directorship of Dr. Frank Schlesinger, formerly of the Allegheny Observatory, important work is being done in the determination of the positions of thousands of stars by photographic telescopes of very wide field. The results are published in star catalogues which are of fundamental importance in astronomy. Accurate positions of the stars and their motions through space are essential in all branches of astronomy and little progress in research could be made without them. Another important service Yale Observatory has undertaken for astronomers is the compilation of a card catalogue of all available determinations of the parallaxes of stars by different methods. This is of great value to astronomers and they are constantly making use of this information. Accurate distances as well as positions of the stars are of foremost importance in studying many problems of astronomy especially those dealing with the size, form and extent of the visible universe.

A valuable work for astronomy has been done by Prof. E. W. Brown of Yale in his preparation of his Tables of the Moon which are now used universally in finding the position of our troublesome little satellite. Prof. Brown is still engaged upon the problems of finding the cause of the irregularities of the moon's motions which have so long puzzled astronomers and which he believes may be due to a change in the rate of rotation of the earth. His work is of the greatest importance.

Recently Yale Observatory has established a branch observatory at Johannesburg, South Africa, where with a 26-inch refractor parallaxes of southern hemisphere stars not in reach of northern telescopes will be obtained. This work has already been started and a number of measurements of the positions of Saturn's satellites, as well as other objects of which accurate positions are needed, have been obtained. Much valuable work is expected of this new 26-inch refractor in the southern hemisphere.

The Harvard College Observatory is under the directorship of Dr. Harlow Shapley, formerly of the Mt. Wilson Observatory, who is the successor of the late Prof. E. C. Pickering, one of the most famous of American astronomers. Dr. Shapley became widely known while still at Mt. Wilson for his studies of the size and extent of our galaxy, or Milky Way, and for his determination of the distances of those great universes, consisting of hundreds of thousands of suns, known as the globular star clusters, whose distances from the earth range from 21,000 to 220,000 light years.

The work of the Harvard College Observatory is diversified and covers many fields. One unique service performed is that of a clearing house of astronomical news. Telegrams or cards announcing the discovery of comets, asteroids, novas or other celestial objects of special interest are sent from this observatory to the leading observatories of the country. News of such discoveries are first telegraphed to Harvard from American or Canadian observatories or, in the case of discoveries abroad, are cabled from the Central Astronomical Bureau of the International Astronomical Union at Copenhagen. This service is of great importance in the discovery of comets, as additional observations are needed at once in order to compute an orbit for the newly-discovered object and prevent its being lost. As soon as news of the discovery is received other observatories make use of the telegraphed position to search for the object and obtain additional observations of position. Bulletins and circulars announcing the progress of research in many fields at Harvard Observatory are also sent out frequently.

Nebulae and star clusters, many of them island universes distant tens and hundreds of thousands of light years from the earth, are discovered, classified and measured at Harvard in order to determine their size and distance from the earth. Variable stars, the study of which forms a very important field of research in astronomy and astrophysics, are also discovered and studied. About thirty-two thousand observations of variable stars were sent to the Harvard College Observatory in a single year by one hundred observers.

One of the monumental pieces of work that has been accomplished at this observatory has been Miss Annie J. Cannon's classification of over 256,000 stars according to their various types, by means of their spectral lines. This work requires expert ability of the highest order and Miss Cannon has been the recipient of many honors in recognition of her wonderful work in this field. The classified spectra of 240,000 of these stars have been published in the Henry Draper Catalogue, part of which is still in press. This publication is of incalculable value to astronomers and is in constant use in many different researches.

For nearly forty years a photographic survey of the heavens, or a sky patrol, has been carried on at Harvard by means of photographic telescopes and a very valuable series of astronomical plates has been secured. These plates are often referred to in tracing the past history of remarkable novas or variable stars or objects of exceptional interest. In studies of the variations in the light of asteroids and certain stars, a work in which Miss Margaret Harwood, director of the Maria Mitchell Observatory, has been engaged for some time, use has been made of these Harvard plates through the cooperation of the two observatories. A veritable mine of astronomical information is stored away in these plates for those who need it in research work.

A new and interesting work undertaken at Harvard in late years has been the study of meteors and fireballs and an examination of photographic plates for the discovery of meteor trains. A recent grant will permit the undertaking of experiments on lenses and cameras suitable for meteor photography.

For many years the Harvard College Observatory has maintained a branch observatory at Arequipa, Peru. Recently this observatory has been removed to Bloem-

(*Continued on page 350*)

NEW ENGLAND THROUGH THE AGES

(Continued from page 298)

gravel and sand, once spray lashed, came to occupy modern positions from one to three hundred feet above sea level, and miles inland. Sea-floor clays that contain Arctic shells and an occasional whale skeleton, laid in the Champlain valley, came to be part of New England soil. Near Quebec these old watermarks stand six hundred feet above the sea; on the Maine coast from two hundred to three hundred feet, and at Boston close to sea level. The southward tilt of New England gave new speed to drainage in the Merrimac and Connecticut valleys. Lakes there were emptied, and rivers began actively cutting down through the old valley filling. Thus they were led to encounter hidden ledges, which account for hundreds of rapids and falls of the present day.

Meanwhile, the sea, raised by the inflowing meltwater, rose higher and higher on the coast, throughout the world. Estimates put the amount of this rise between two hundred and fifty and three hundred feet. Either this or a still later rising of the ocean accounts for the drowned forests of our coast. Stumps, fallen logs and branches, freshwater peat and leaf mold stand far below the tide, or lie buried beneath salt marsh deposits. Drowning of the coast had its benefits, for it produced the harbors of Boston, Portsmouth, Portland, and other New England cities.

Between this last great event of geologic history and the human incidents referred to at the beginning of our sketch, there is a gap of unknown length. Records fail to measure it. Up and down the rivers of Maine are the burial places of the "red paint people", where only little stone implements and a smudge of insoluble red ochre mark the resting places of bodies long since crumbled to dust. Immense heaps of oyster shells on the banks of the Damariscotta River, of almost incredible thickness and extent, must represent many centuries of close contact with Nature on the part of aborigines, which ceased at so early a date that the Indians who mentioned the shell-heaps to Champlain, in 1603, appear to have been unaware of their origin. An ancient fish weir, unearthed during the construction of the Boylston Street subway, in Boston, is so placed as to indicate that the land there stood sixteen feet higher when the weir was used than now, and has now sunk to the lower level. It is thought to be a few thousand years old.

Such has been, in brief, the story of the past. And so has New England's natural history almost linked with its human history. And not only what New Englanders have done and been but what they are now doing and hope to do is influenced by Nature's records.

State Park Meeting

The National Conference on State Parks has accepted the invitation of Richard Lieber, Indiana director of conservation, to hold its ninth annual meeting at Clifty Falls State Park, near Madison, on the Ohio River. The dates are May 7, 8 and 9.

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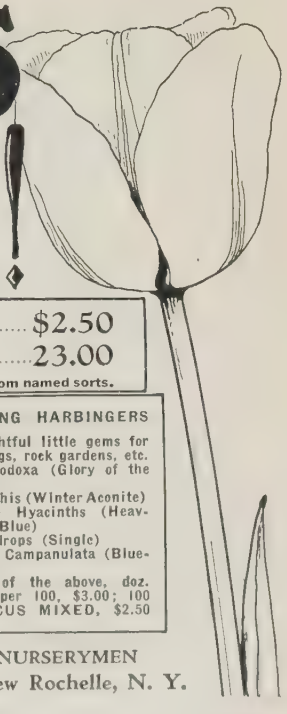

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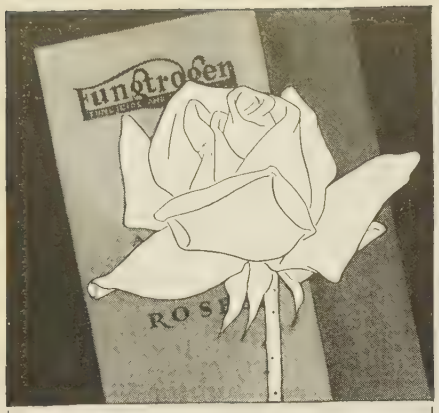

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Having enjoyed a most successful season in 1928 at Camp Andree, Briarcliffe, New York, the Nature Training School under the general direction on the Coordinating Council of Nature Activities will be held this year at Gardner Lake, near New London, Connecticut. There will be three overlapping periods of two weeks each, from June 1 to 15; June 8 to 22; June 15 to 29.

For full information concerning these courses write to Dr. Bertha Chapman Cady, Coordinating Council on Nature Activities, The American Museum of Natural History, 77th Street and Central Park West, New York City.

NEW ENGLAND'S BIRD GUESTS

(Continued from page 301)

the occasion for certain ducks and geese to move northward to unfrozen waters in the interior, and the next "freeze" sends them back to the coast. Severe storms with deep snow in the north cause southward movements of birds that feed upon the ground such as horned larks, snow buntings, juncos, and other sparrows. Sometimes in February large lakes in the interior freeze over for the first time in the season, and then ducks and grebes fly southeastward across New England toward the sea.

There are many northern birds that normally pass the winter in northern forests and do not ordinarily reach New England at all, or come only in negligible numbers, but that occasionally appear here abundantly during the winter months. It is an old saying that hard winters bring pine grosbeaks, crossbills, redpolls and other northern arboreal birds, and the appearance of numbers of goshawks and snowy owls in autumn has caused would-be weather prophets to predict a hard winter. Severe winters, however, do not necessarily bring a flight of such northern birds, as they have appeared several times in my experience during mild winters. How then shall we account for their appearance here?

Birds that live through winter in boreal regions must have a large supply of accessible food. Lacking this they must either starve or freeze, or migrate to some region where food may be found. If the north wind brings heavy snow, covering the ground deeply, birds like tree sparrows and snow buntings, which feed mostly on the ground, naturally drift southward before the storm, looking for food. Should there be a failure of the cone crop also, crossbills, pine grosbeaks and redpolls, finding little food on trees or ground, must go south or perish; but if cones are abundant on the trees these arboreal birds can stay in the North even though deep snow covers all food on or near the ground. Therefore, an exceedingly dry season accompanied by late spring frosts, resulting in a widespread dearth of cones and wild fruits in the North, must be the chief cause for southward migration among those arboreal birds that otherwise can live through severe winters in the shelter of northern forests. When northern hares, ptarmigan and mice or lemmings are in their usual abundance in the North, owls and goshawks

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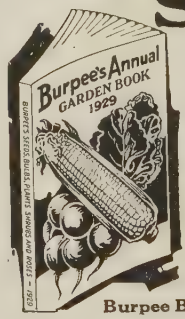

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can live sumptuously there. When epidemic or other causes nearly exterminate the creatures on which rapacious birds rely, they must go south or starve.

Another explanation of the southward winter movement of a species usually wintering in the North was furnished by the flight of Arctic three-toed woodpeckers into New England in 1923. Mr. Josselyn Van Tyne says that between 1909 and 1914 there was an irruption of spruce budworms in eastern Canada and Maine, which caused the death of trees in great numbers. This was followed by a great increase in the number of bark-boring beetles and wood-borers, which because of this abundance of food was succeeded in due time by an increase in the numbers of these woodpeckers, which finally overflowed into the New England territory.

There are many different routes of migration from New England. Some of the shore birds apparently leave our shore and strike directly across the sea toward the eastern coast of South America. Land birds frequently reach the Bermudas and many commonly go to the Bahamas and Cuba. For the most part those that go to South America and Central America fly several hundred miles across some part of the Gulf of Mexico. What guides them to their goal? As our own good poet has expressed it:

"There is a Power whose care
Teaches thy way along that pathless coast—
The desert and illimitable air,—
Lone wandering, but not lost."

OVER LOFTY TRAILS

(Continued from page 307)

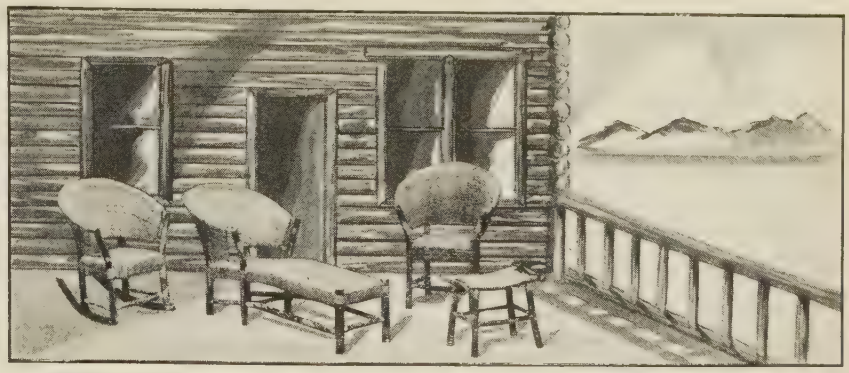
two of which are far above tree line on the Presidential Range. Others are soon to be built. These afford the mountaineer the pleasure of tramping without the burden of packing. He who scorns such luxuries need not use them, for he may climb without a trail and camp without protection if he so chooses. These huts keep no one from the mountains but bring many to them.

It is unwise even to estimate the number of people who climb New England's summits each year. Last summer, however, the two huts of the Appalachian Mountain Club above tree line on the Presidential Range entertained three thousand people, each of whom had climbed at least three thousand feet over several miles of rough trail. At all the huts, low and high level, summer and winter,—the camp on the highway at the base of Mt. Washington is open the entire year,—six thousand were served with lodging. And these figures increase every year.

Who are the mountaineers who use these facilities? *Anyone* may tramp the mountains of New England with a minimum of risk and a maximum of pleasure. Because the mountain clubs always mark their trails as well as possible with conspicuous signs, and a large part of the trail mileage is described in guidebooks and indicated on maps.

The youngest mountaineers come from boys' and girls' camps. No camp within a day's journey of the mountain fails to take all or at least its strongest members on a hike over some of the mountain trails. The favorite trip is over the Presidential Range. But if the ideals and

Wherever Nature Smiles—



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leadership of the camp are right, the boys and girls are taught that there is enjoyment and beauty below timber line as well as above and that altitude is not always synonymous with beauty of view.

Another class of mountaineers is recruited from automobile tourists who realize that merely to motor through New England is not to see it. They park at public camp grounds in state or national forests, or stop at hotels or farm houses, and get variety in their vacations by climbing to a summit.

There are the summer residents, who return annually to the same hotel or to their own cottage, who love a particular locality and look forward each year to seeing "their" mountains. Summer colonists constitute many of the mountain clubs and maintain hundreds of miles of trail in their vicinities. Finally there are the city dwellers whom the Red Gods call. One function of the larger mountain clubs is to provide repeated excursions from the cities to all parts of the mountains. Summer, fall, and winter, groups constantly leave the south of New England for the North, for three days, a week, or ten days.

The mountains draw their devotees not only for tramping, but for snowshoeing and skiing. "Go south for the winter if you must; go north if you can," is the slogan. More and more in each locality near the mountains some hostelry now remains open the year round. Autumn first with its foliage, later with its leafless branches affording wider outlooks, its keen air and bare frozen ground making for speed; winter, a world of different colors and wonderful tints, with the stimulus of zero temperature and dry air; these call body and soul with challenges even beyond summer. The short "mud stage" in April is the only season that cannot compete successfully with the climate farther south. An incipient development is that of ski trails, cleared high and wide, and properly located for grades and curves.

"But after all," asks one, "what are the New England mountains by comparison?" The Yankee asks in return, "What may they not be?" We have spoken of the facilities which have brought them within the reach of all, if you climb them by easy ways. But if these seem tame, strike off without trail through the rough; carry tent and blankets with extra clothes and food. Or, going light, try rock climbing up ravines or cliffs. If still unsatisfied, do these things in winter; and see how little may be lacking to compare with conditions under which the wise mountaineer refuses to take chances anywhere. Among these mountains you can buck Nature and her elements to your heart's content, if you choose, and sometimes will do so when you do not choose. He who attempts Mt. Washington in winter takes his life in his hands if he does not heed the first warning of approaching storm. Lives are still sometimes lost upon the Great Range.

New England has always been the nurse of men; of men who have stayed and fought for existence, of men who have gone forth and won; of women who have wrought out not only strength of character but gentility and culture. So the mountains of New England, winning friends by their beauty and their grandeur, also train their children for strength of mind and heart or for the conquest of greater heights.

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NEW ENGLAND'S WILD FLOWERS

(Continued from page 310)

and from other causes. The brilliant coloring attracts many people who have no real affection for the plants. Thus the cardinal flower is almost sure to be gathered wherever it is seen for its gorgeous hue, and the various types of lilies, such as *Lilium canadense* and *Lilium philadelphicum,* suffer for the same reason. The fringed gentian, too, which comes late in the autumn, is of a most beautiful blue and many are tempted to pick it. Then, of course, all the early blossoms tempt the pedestrian, finding them after the long winter, to return with his hands full.

In our group of wild flowers suffering from too much picking must also be put those which last well in the house in winter, for so many people like to see something green during the long snowy months. Here must be included the pitcher plant, *Sarracenia purpurea,* whose leaves attract attention because of their rich veining and their odd shape, for these pitchers are traps set for the unwary visitors. When such plants as these ones are gathered for sale, the danger of their extermination is greatly increased. In fact the New England Wild Flower Preservation Society believes that no wild flowers, unless actually grown for the trade, should be sold, as they are usually taken from privately owned land without the owner's permission, and often from places established as preserves.

However, many of our wild flowers may be picked freely, and in many cases are decorative and add much to the charm of a room. All the flowers of the composite family may be gathered to the heart's content, so no one need be without flowers in plenty during our summer months.

New England has a rich and varied floral wealth in its six and a half degrees of latitude, its six thousand feet of altitude, and its almost infinite variety of habitat conditions, that one hardly knows whether to group its notable flowers by families, by seasons, by zones, or by habitats. In any case only a few of those conspicuous because of their beauty, variety, or familiarity can be mentioned. In Nantucket, and perhaps in a few other places, the Scotch heathers, *Calluna vulgaris* and two species of *Erica,* waifs from Europe, have long been established. Many of our own species of the heath family, however, some of which have already been noted, are more beautiful and deserve as firm a place in our literature and our affections as is held by these famous plants in their own home. Such is *Rhodora,* whose rose-purple flowers, expanding before the leaves, and immortalized by the sage of Concord, enliven our bogs and wet hillsides, replacing or accompanying the more southern pink azalea. Dearest of all to many is the white azalea of the swamps, a later bloomer whose waxy flowers have a cloying sweetness. The mountain laurel, one of the loveliest of our flowering shrubs, is locally common, and its small relative, the lambkill, of more sinister fame, is a common roadside shrub. The regal rhododendron, characteristic of the Appalachians, is in our northwestern ranges, and on our

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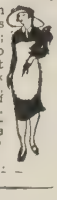

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higher summits blooms in June and July its smaller relative, the Lapland rose-bay of circumpolar range.

Space will allow only the mere mention of those other members of the heath family, mostly bog-lovers, the Labrador tea, with its curious leaves, lined with brown wool; the leather-leaf, and the sweet pepperbush, *Clethra alnifolia,* of sunny meadows; the creeping wintergreen, formerly the source of the oil popular as flavoring, whose overwintered pink fruit is so dear to childhood as the checkerberry; and that near-relative of the heaths, the dainty snow-berry. And there are the numerous blueberries, huckleberries, and cranberries, turned into wealth by the thrifty folk whose land we cherish.

We must not forget to mention a few of those that grow in our brooks and lakes, or on their margins,—the pickerel weed with its blue spike that is so dear to the hummingbird moths; the arrowhead, *Sagittaria,* whose roots burrow deep into the ooze of muddy margins, but nourish blossoms of snowy whiteness; and the white waterlily.

What of our forests of pine and hemlock which, though cruelly ravished by the axe and saw, may still shield from the sun here and there a patch of mossy carpet that nourishes a goodly assemblage of lowly but beauteous flowers? Many of those already mentioned find here their original stations, and besides, the lovely pink-veined wood-sorrel, *Oxalis acetosella,* the white-flowered *Dalibarda* of the rose family and the orb-leaved wintergreens, *Pyrola,* with their clusters of white or pinkish flowers that suggest the lily-of-the-valley. One of the most charming is the twin-flower, that was such a favorite of the great Linnaeus that he consented to have it dedicated to him, and *Linnaea* it is.

On our higher summits grow many plants that range around the pole, and that on these bleak peaks find their southernmost limits in our region. Such a wealth of these are present that one favored spot, overhanging a mighty cirque on Mt. Washington, is called the Alpine Garden. Here grow the golden mountain avens, that resembles somewhat a giant buttercup, the dainty moss-plant, the Lapland diapensia, White Mountain bluets,—white not blue,—the Greenland arenaria, the mountain heath, *Phyllodoce caerulea,* an Alpine azalea, *Chamaecistus procumbens,* and many others, including a few peculiar to these summits, such as the little eyebright, *Euphrasia oakesii,* named after the botanist who early worked on these peaks, among the flowers he loved. Here the eager plants press closely the flanks of the melting drifts, to take all advantage of the fleeting summer of the heights.

Even when summer has fled, New England is still a great flower garden, for its maples and birches have turned to yellow, scarlet and gold, and on its blazing hillsides are scattered the green spires of spruce and pine and fir. When even the asters and goldenrods have faded, the bright blue of the gentians brighten the thickets and meadows, the yellow blossoms of the witch hazel shine through the fast-dropping leaves of the undershrubs, and in the swamps the red berries of the northern hollies glow from the leafless twigs. So does the year draw near its close, still in a blaze of glory.

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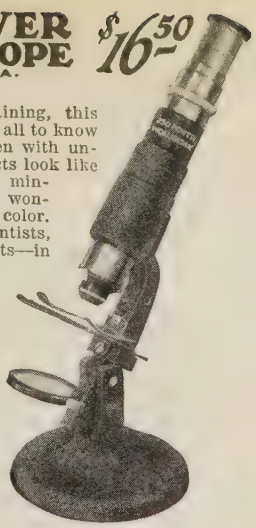

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NEW ENGLAND'S MAMMALS

(Continued from page 314)

apple orchards. Many a bear, however, passes a practically blameless life as far as man's interests are concerned. Without this interesting beast our wilderness areas would lose a definite part of their charm.

If space permitted, it would be pleasant to write of some of the other fur-bearing species, such as the raccoon, the mink, the three species of weasels, the skunk, the otter, the beaver, and the muskrat. The otter, for example, still lingers in small numbers almost within sight of the Bunker Hill Monument, and the beaver has once more become common in parts of Maine. Then there are numbers of lesser species, each interesting in its own way: the woodchuck, every farmer's unbidden guest; the chipmunk, easily considered the most attractive and confiding of all our mammals; the gray squirrel, listed as a game animal and yet almost as tame in the woods of Massachusetts as on Boston Common; the elusive lemming mouse, scorner of baited traps; the two species of dainty jumping mice; the snowshoe rabbit, retreating northward as the cottontail advances; and the blundering porcupine, which has developed an armament of quills at the expense of its brain. And still the roll is far from complete.

ACADIA NATIONAL PARK

(Continued from page 318)

Park by Echo Lake.

Botanically, the region is most interesting. Flowering plants do wonderfully there, native or cultivated, blooming brilliantly and in rich profusion. Rock gardens of Nature's making fill clefts and hollows on the granite mountains. Wild orchids grow on the alluvial soils; in the woods grow the pink ladyslipper, *Cypripedium acaule,* the wood lily, *Trillium undulatum, Clintonia* in broad leafy masses surmounted by magnificent blue berries in the later season, clustered pyrolas whose flowering stems with drooping ivory bells recall the lily-of-the-valley, the ground dogwood, or bunch berry, covering with white flower-like bracts or scarlet fruits, sunlit patches among the firs and spruces, *Linnæa bor-*

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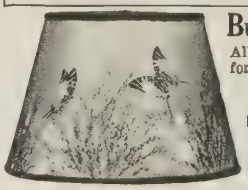

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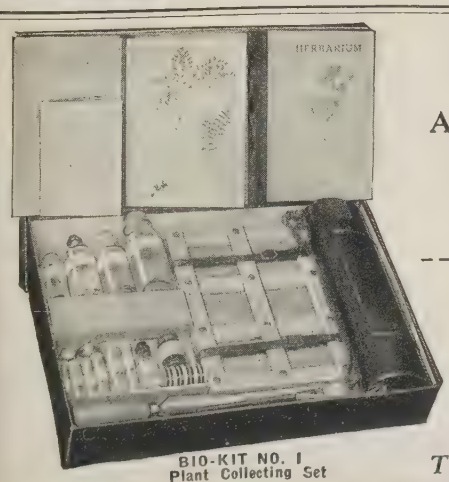

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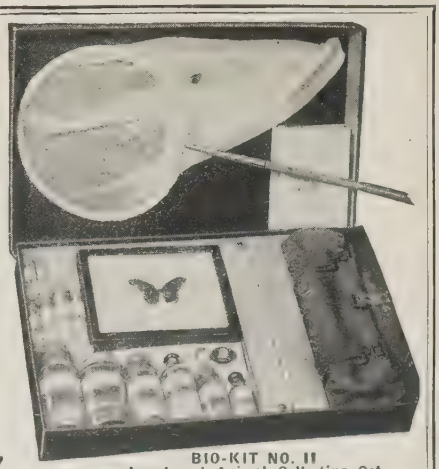

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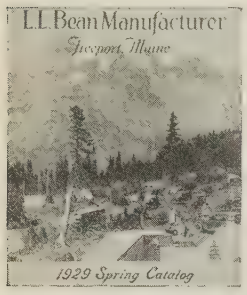

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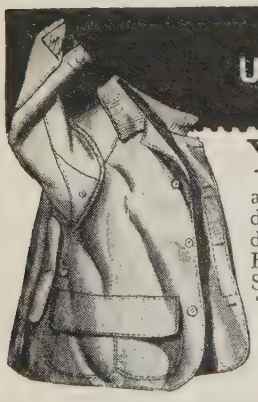

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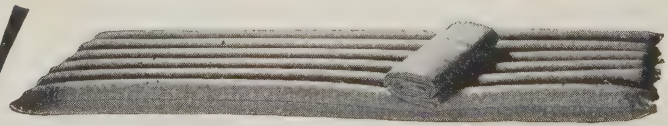

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calis, most delicate of woodland plants that grow beneath the northern evergreen shade, the twisted-stalk, *Streptopus,* close cousin of the Solomon seal, with brick-red, oval fruits pendent above shady streams.

In the open, wild roses gain a beauty in the cool air and radiant sunshine no garden can surpass; violets, white and purple, carpet the ground in spring, Michaelmas daisies make wild gardens by the wayside in the fall, wild irises grow along the water's edge, in meadows the meadow rue with many another moisture-loving plant, in the peat swamps the rhodora, of which Emerson wrote his famous poem commencing:

"In May, when sea winds pierced our solitudes,
I found the fresh rhodora in the woods,
Spreading its leafless blooms in a damp nook
To please the desert and the leafless brook."

Of native flowering shrubs and trees there is wide variety. In early spring the shad-bush, *Amelanchier canadensis,* transforms roadsides and bare rocky slopes into scenes of sunlit beauty; the wild thorns later open white blossoms on the woodland edge, to be succeeded in the fall by rich profusion of red fruit; in the early summer the most beautiful of the viburnums, *V. lantanoides*—difficult to transplant and not brought into cultivation—lights up moist woodland valleys with its pure-white flower clusters. At every season from opening spring till the witch hazel blooms with the first frosts in autumn there is changing interest and fresh store of beauty.

For plant life in every worthwhile form, as for birds and other animals, the park is sanctuary and offers a wonderful opportunity, under the aegis of the National Government for the creation of wild gardens and a permanent exhibit of the Acadian flora for the study of botanists and planters and the interest of all.

The forest of the park is that of the Canadian zone, of "murmuring pines and hemlocks," of firs and spruces and the northern hardwoods, in its richest content. With a few notable exceptions, the present forest is second growth or younger, as the primeval trees were early cut along the coast where they could be loaded onto vessels. But what the original forest was in favorable locations the huge rotting stumps, cut high for snow in winter, remain to tell, and such it will be again under national protection against fire, and insect and fungus attacks that are more fatal still.

Indian occupation of the Acadia Park region must have been long, judging by the deep shell-mounds which it left behind. This, with the lands of its latitude to the west, was the region of the birch bark canoe whose building Longfellow describes in Hiawatha in lines beginning: "Give me of your bark, O Birch-tree!" To the south, the canoe birch does not grow to size to furnish the great sheets of tough but pliant bark required, and dug-outs or logs hollowed out by fire were used instead.

These shell-mounds are rich depositaries of the Indians' stone-age implements, and a museum for their safe-housing and exhibit, built through the generous interest of the late Dr. Robert Abbe of New York and friends whom he inspired, was opened last summer by the Sieur de Monts Spring

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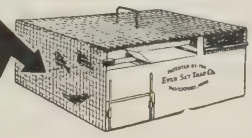

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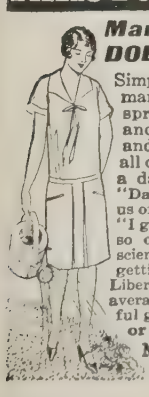

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entrance to the park, under charge of Professor Warren K. Moorehead, of Andover, Massachusetts, the archeologist.

The whole region of Acadian Maine and New Brunswick to its north is famous fishing territory for trout and salmon, owing to the abundant lakes and streams the Ice Sheet left behind, and the cool waters of its northern climate. April, when the ice goes out, is the fisherman's hour, and then he fills the trains "down East". Outside the famous Bangor Pool, salmon are no longer to be found in the region of the park but one must go north to find them, in leased and protected streams. But trout are abundant, and salmon-trout in certain waters, and the State and Federal governments both are taking steps for their increase.

Sea fishing is the unique opportunity of Acadia among our national parks. The waters off its shore are identical with those of the Great Banks opposite, which men crossed the ocean to fish, in little sailing vessels without chart or compass, as early as the middle of the 16th century. There are none better in the world. Along the shore, rock cod and others are found, lobsters grow abundantly, and clambakes and chowders are a feature of the summer life.

But the shore furnishes, besides, a wonderful opportunity to biologists for marine research, affording material for their work in rich abundance, and an association for summer study, incorporated by the State, —the Mt. Desert Island Biological Laboratory—has been for years established at Salisbury Cove on upper Frenchmans Bay.

Geologically the region of Acadia National Park is one exhibiting a vast antiquity. Its earliest rocks are shales and sandstones belonging to the Cambrian period, hardened into trap.

When these early deposits, uplifted and base-levelled, were already worn and old there came a time of fiery volcanism along the region of the present coast, and lavas flowed. Then followed a long period of submergence, the shore sinking as atmospheric wastes from an eroding land were piled upon it till these had reached a depth of thousands of feet into whose mass was driven with terrific pressure from below the molten mass which slowly cooled and crystallized to form the granite of the present mountains. It is a vast cycle during which the whole drama of life on earth above the ocean level has developed.

In recent geologic time, the story has been one of glacial erosion, of vast Ice Sheets moving slowly seaward, driving before them the ancient soils with their accumulated biologic records and grinding down the rock until the old lava flows again are visible, resting as they once poured over it on the worn and tilted surface of the ancient Cambrian.

Summer life at Mount Desert began in the middle of the 19th century, when rail and steamboat service to Bangor made the island first accessible. Fame of its beauty spread and people came in rapidly increasing number. Horses were few and roads were rough. Walking and climbing, rowing, sailing and canoeing were the occupations of the summer visitors, with picnics and excursions. Great changes have come, and others yet are on their way, but the old trails over the mountains remain, and the wonderful ocean views. The changes

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due to man seem little in their presence. Develop its territory for the national use the National Park Service must, but it can be safely trusted to conserve the beauty as it will the freedom of a great coastal landscape, supreme in its own type.

Other national parks in the eastern portion of the country are in process of formation, in the Great Smoky Mountains of North Carolina and Tennessee, on the Blue Ridge of Virginia overlooking the war-famous valley of the Shenandoah, and elsewhere, but to Acadia will belong the memory of having led the way and the distinction of being created wholly by the gift of citizens to the United States.

NATURE IN NEW ENGLAND

(Continued from page 324)

has told us. And these words are echoed many times.

Massachusetts, three hundred years ago, became a pioneer in the movement which every Nature-lover is now anxious to promote. In 1634 Boston Common was acquired as a city park. In 1641 the Massachusetts Bay Colony reserved to the people "great ponds", areas with water surface of ten acres or more. Now, in 1928, Governor Fuller appointed a Committee on Open Spaces, representing seventeen organizations interested in aesthetics, recreation and conservation. Confronted with a situation where the present state holdings are ill-distributed and inadequate, this committee was given the task of surveying the existing and potential sites and recommending a plan covering future open spaces, urban areas and transportation and communication facilities.

A vigorous public opinion is the dynamic power sadly needed to recapture and preserve the last available portions of the beauty which Nature in a generous mood lavished upon New England. The committee has a large undertaking calling for vision, leadership, unselfishness and enthusiasm. A start has been made by lovers of Nature in Massachusetts. The D.A.R. of the state has given one thousand acres of beautiful country near Goshen, and the Federation of Bird Clubs of New England has secured by gift or purchase twelve wild life reservations totalling two thousand acres. Town forests are being established by many communities through the activities of the Massachusetts Forestry Association, and this movement is becoming general in New England. Since 1920 the State has acquired State Forests of 105,000 acres and authority has been given for the purchase of eight thousand more acres. Funds are still needed, however, for the development of these forests.

This movement in Massachusetts is reflected throughout New England. The necessary leadership is materializing. The economic considerations are a truly helpful lever. But still we lag far behind Europe. So, as Massachusetts celebrates her three-hundredth anniversary next year, may it also be hoped that in vision of the future and in courage in convictions, the citizens of New England today may prove themselves not unworthy descendants of the men who, against tremendous odds, hewed New England out of the wilderness.

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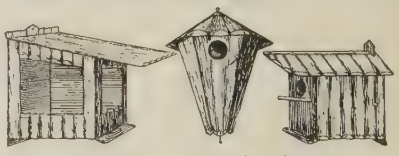

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THE SILVERY HARVEST

(Continued from page 327)

Maine and more than seven hundred in Massachusetts, making, with their families, many thousands who are fed and clothed by this rosy-fleshed aristocrat of the fish market.

The Pilgrims, old records say, went daily to the flats to dig the clams on which the children "waxed fat". All down the intervening years the shell fish, clams, lobsters, oysters and scallops have been a valuable commercial asset to New England, and a great economic factor in the lives of those who live near the shore. No body of water grows finer shellfish than Narraganset Bay in Rhode Island, and oysters, clams, quahaugs and scallops are shipped to other states and to Canada. A Rhode Island fisherman's license limits him to procuring twenty bushels each of oysters, clams and quahaugs in any one day. Over two hundred thousand bushels of quahaugs or "little neck" clams were shipped from Rhode Island waters last year, and the Commission recommends that certain areas be indefinitely closed to prevent the extermination of this shellfish. Now that the automobile has merged inland and shore, and the demand for these luscious foods, flavored with the freshness and tang of the sea, has grown rapidly, what seemed an inexhaustible supply is being depleted.

Maine, which was rich in shellfish of all types, fears that to future generations its clams, like its salmon, will be almost unknown. Massachusetts, the pioneer state in fish inspection, is guarding her "treasures hid in the sand" from polluted waters and over-digging. So far, the higher prices paid by the consumer for shellfish have balanced the smaller number secured, but a natural resource so valuable and with such tremendous commercial and economic possibilities will inevitably be protected and enlarged. Keen business men, biologists and dieticians are giving enthusiastic co-operation in this ancient craft of fishing.

New England is not selfish. With the efficient modern methods of preparation, marketing and transportation, families far inland may purchase fish as delicious and as delicately fresh as that in coast towns.

The most radical and beneficial change in marketing New England's sea foods has come in the last few years in the "filleting" of fish. The fillets are then packed with ice in cartons for shipment or local delivery. Fully half the haddock coming into port are marketed in this form.

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Fish is rich in protein and, particularly in salt water fish, in the iodine content which prevents goitre. It is also most desirable for those wishing tempting food low in caloric value. Thrifty people more and more are appreciating the joyous possibilities of fish as a food.

As long as New England borders the Atlantic, her fisheries will go on. They are part of her tradition and her history, foundation blocks of her prosperity and the health of her people. The great grazing grounds of the West have vanished. New England market gardens are giving way to real estate developments, but the fields of the sea, with their flashing, delicate harvest, are wide and fallow.

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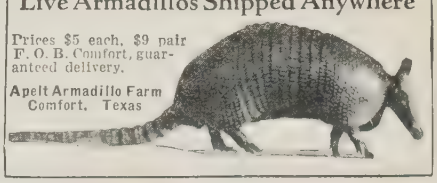

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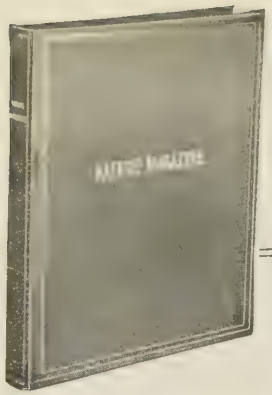

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THE FORESTS OF NEW ENGLAND

(Continued from page 332)

being changed so that private owners can afford to hold growing timber.

Three-fifths of all the people in the United States live east of the Mississippi River, while three-fifths of all the standing forests that remain in the country are located in the Rocky Mountains and along the Pacific Coast. At the same time taking our country as a whole, we are told by the Forest Service at Washington that we are using up our forests four times as fast as they grow. In the eastern part of our country every last wooden thing from a rolling pin to a barn costs two or three times as much as it did fifteen years ago. Declining natural resources are the first element in the high cost of living. In the Atlantic States we are already in the ominous shadow of a timber shortage. Are these significant facts to you? New England is waking up to the situation.

NEW ENGLAND VIEWS THE SKIES

(Continued from page 338)

fontein in the Orange Free State of South Africa. Here also is located a branch observatory of the University of Michigan and less than 250 miles distant is the new branch of the Yale Observatory at Johannesburg. The study of the southern heavens has been carried on by the Harvard College Observatory for thirty-seven years at its southern branch at Arequipa. The 24-inch Bruce telescope and other instruments have been used there in the discovery of some ten thousand nebulæ of the southern heavens, in the study of the Magellanic clouds, globular star clusters, gaseous nebulæ and many double and variable stars not visible in northern latitudes, and in the sky patrol work similar to that carried on in the northern hemisphere.

A sixty-inch reflector which will be the largest reflecting telescope of the southern hemisphere is being built to be used in a special study of details in the structure of the Magellanic clouds, southern Milky Way regions and nebulæ and star clusters not visible in our latitudes.

If we turn our attention now to the appearance of the heavens in May we find Orion has disappeared below the western

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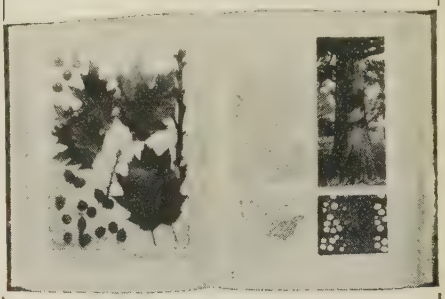

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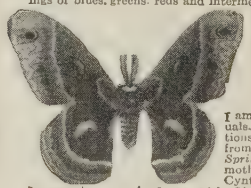

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horizon and Gemini is low in the west. Hydra now fills nearly all of the far southern sky. Its riders, Crater and Corvus, are near the meridian in the south. Virgo is in the southeast and Boötes high in the east. Denebola, at the tip of Leo's tail, it will be recalled, makes a great equilateral triangle with Arcturus in Boötes and Spica in Virgo. The Big Dipper now lies across the meridian due north. Vega is appearing in the northeast and Capella will soon disappear from view in the northwest.

Venus is now Morning Star. On May 15 it will rise about one and a half hours before the sun and on May 26 will attain its greatest brilliancy. This month Mercury should be easily seen in the evening sky for about a week before and after the date of greatest eastern elongation, on May 15. On that date Mercury will set about two hours after the sun and will be about twenty degrees above the northwestern horizon at sunset. Opportunities to see this planet to advantage are not many and as this is a very favorable opposition one should take advantage of it. Look for a star-like object very similar to Vega in the evening twilight north of west on or near the middle of the month.

Jupiter comes into opposition with the sun on May 14 after which it will be in the morning sky. It will be too close to the sun to be seen this month. Saturn now rises about ten o'clock in the evening and will appear like a yellowish star of first magnitude in the southeast between Scorpio and Sagittarius. Mars is now in Cancer, west of the Sickle in Leo, easily distinguished by its ruddy color, and will set about midnight the middle of the month.

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The American Tree Association stands for a constructive policy of forest protection and extension, to increase appreciation of forests as natural resources essential to the sound economic future of the country.

The Association directs encouragement of tree planting by the public; disseminates popular forestry news for the information of editors of the daily press; and compiles and distributes forestry news and reports on legislative progress for assistance of active foresters in the field.

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NEW ENGLAND LOOKS AHEAD IN FORESTRY

First Forestry Law was passed by The Plymouth Colony;

Now section is studying situation facing it

NEW ENGLAND is turning her thought to her forest situation and giving it more consideration than ever before. To New England goes the credit of the first forestry law. Three hundred years ago, and six years after the little Plymouth Colony had gained a foothold in the new land, the founders attempted forestry legislation. This has a profound significance as we look back upon the forestry history of our country. It was, at least, a recognition on the part of our forefathers that the forests are vital to our existence, and it is, as well, a commentary that it has taken us three centuries to come to a full appreciation that we must use our forests constructively. In the printed records of the Colony of New Plymouth, Massachusetts, Vol. XII, 1620-1697/8, page 8, the Massachusetts Historical Society finds the following order:

> *"Orders agreed on at severall times for the generall good of the Colony:*
>
> *"It was decreed by the Court held on the 29. of March Anno. 1626. That for the preventing of which inconveniences, as doe, and may befall the plantation by the want of timber, that no man of what condition soever sell or transport any maner of works or frames, for howses, planks, bords, shiping, shalops, boats, canoes, or what so ever may tende to the destruction of timber aforesaid; how little so ever the quantie be; without the consent, approbation, & liking of the Governour, & Counsell."*

With the tremendous growth of her industries, all dependent upon forest products in one way or another, New England has become aroused and programs looking years ahead are now being talked of. The program for the development of forest resources was proposed at the Third New England Forestry Congress. Five objectives are set up in this program, which was unanimously adopted, and the means for carrying them out were outlined. The five objectives are:

"To restore the depleted and deteriorated forests of New England to full productiveness that they may render the maximum service to the region as sources of raw materials for our industries, for water-shed protection, and for recreation and scenic values.

"Creation of more favorable conditions for the private owner of forest land, which will encourage him to preserve and improve existing forests, and to reforest additional land.

"Extension of basic knowledge of forestry practice.

"Protection of the public health, promotion of happiness, and the increase of the general attractiveness of New England to residents and visitors, through recognition of the necessity of public ownership and control of small areas of high scenic and recreational value, by the creation of systems of State parks embracing sea and lake shores, waterfalls, mountain scenery, roadside areas, remnants of primeval forests, and sites of historical interest.

"Organized effort to educate all elements of New England business, professional, civic and social life, to a true recognition of the overwhelming importance of the forests of New England in regional plans for future prosperity and development."

New England has 1,158,538 acres of publicly owned lands, most of them open for recreational use, said Harris J. Reynolds of Boston, secretary of the Massachusetts Forestry Association. Including water surface areas, he estimated that approximately 4,000,000 acres are available to the public for recreation.

A preliminary survey by the American Tree Association shows the New England states have 10,000,000 acres of idle forest land that should be planted and put to work growing trees. This is of tremendous interest to her industrial life because wood is the cornerstone of all her great industries. This great manufacturing center should have forest products at her factory doors instead of having to pay freight rates on lumber from points as distant as the Pacific Coast states. The figures show that New England has a forest area of 18,989,200 acres which is naturally restocking. Thus far reported the survey shows Maine has a million acres of idle land needing planting and Massachusetts 720,000 acres, Connecticut 200,000. At the present rate of replanting it will be a hundred years before these idle acres will show a crop.

New England and Massachusetts in particular are the leaders in town forests. One hundred members of town forest committees met in Boston just before the meeting of the third New England Forestry Congress at Hartford and discussed ways of increasing town forest acreages. In New Hampshire there are 65 town forests in operation.

As to the further advancement of the practice of forestry in the United States Henry S. Graves, dean of the Yale School of Forestry, has just announced the establishment of the Charles Lathrop Pack Foundation. A permanent endowment of over $200,000 has been placed in the hands of the institution, under very broad terms, to enable the School of Forestry to contribute more effectively in bringing into practical application the principles of forestry. This action is in direct line with other activities of Mr. Pack in forest conservation based upon his technical knowledge and experience in forestry. Into New England as one phase of its educational work the American Tree Association has sent thousands of its Forestry Primers. These have been given to teachers who use them in various classes. Thus it will be seen that New England is becoming forestry minded in another direction so that all in all the outlook is a good one.

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And also see

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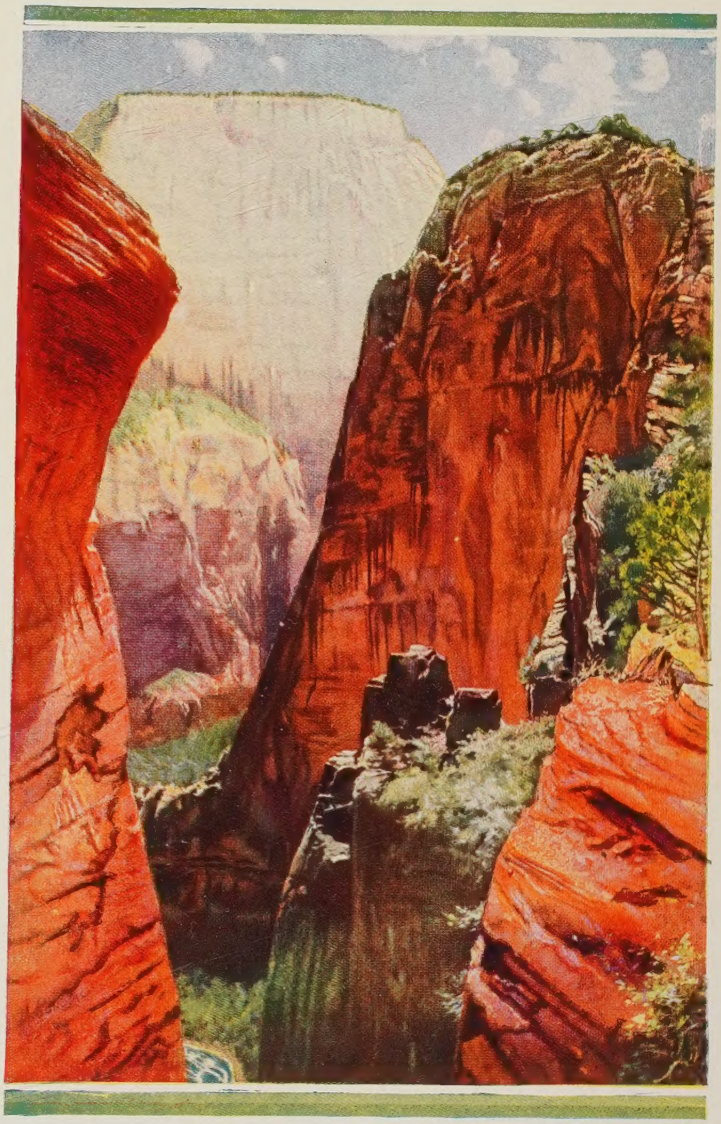
The walls of Zion Canyon are cut into tremendous temples and towers, rising sheer four-fifths of a mile into the blue Utah sky. There is nothing like them for sheer depth and vivid color anywhere on earth.

Bryce Canyon is wholly unique—an enchanted Oriental city. Its walls are fluted like a gigantic organ; it holds great temples, pagodas and cathedrals, and endless sculptures of human and animal shapes, startlingly real! And the colors range from delicate cream and coral to flaming orange and vermilion.

Come to Grand Canyon this summer by this wonderful new way! Zion, Bryce Canyon and Grand Canyon are all easily included in a two weeks' vacation trip—with every convenience of modern travel, and *at surprisingly low cost.* The tour of the canyons, stopping at handsome new lodges, requires only five days by motor-bus after leaving your Pullman at Cedar City, the gateway. You can go independently or by an Escorted All-Expense Tour with interesting companions.

Season: June 1 to October 1. Send the coupon today for richly illustrated booklet and full details.



The Great White Throne, Zion Canyon

C. J. Collins, General Passenger Agent, Dept. 317
Union Pacific System, Omaha, Neb.

Please send me complete information including cost, and booklet about Zion-Bryce Canyon-Grand Canyon National Parks. I am also interested in:

☐ Pacific Northwest and Alaska ☐ Yellowstone
☐ Colorado ☐ California ☐ Dude Ranches
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A word to the wise; Our representatives in Holland inform us of a shortage in the tulip crop and inevitably prices will rise considerably as the season advances. Early buying is of greater importance to you this year than ever.

Schling's Famous "Special" Border Collection

(As pictured at left, from left to right)

Stately Darwins and Wonderful Breeder or Art Tulips—a glorious symphony of color.

Jaune d'Oeuf (Breeder) A lovely golden sunrise color with tints of apricot on outside of petals. Of immense size . . . . . .
Doz. 85c 100 $6.50 1000 $60.00

Rev. H. Ewbank. (Darwin) A fine clear lavender color. Very large flower of lovely shape.
Doz. 65c 100 $4.50 1000 $42.00

Mr. Farncombe Sanders. (Darwin) A clear luminous scarlet. Extremely large and most attractive of all Darwins . . . . . .
Doz. 65c 100 $4.50 1000 $42.00

Baronne de la Tonnaye. (Darwin) A beautiful rose-pink, shaded blush-pink at edges. Flowers of great size . . . . . .
Doz. 65c 100 $4.00 1000 $38.00

IMPORT COLLECTION PRICES

1 doz. each of the above 4 varieties (48 bulbs) $ 2.50
25 each of the above 4 varieties (100 bulbs) 4.75
100 each of the above 4 varieties (400 bulbs) 18.50
1000 each of the above 4 varieties (4,000 bulbs) 175.00

Heralds of Spring!

200

Lovely Spring Beauties—25 each of the following 8 named varieties for only.....

$6.00

Snowdrops—Glory of the Snow (blue)—Heavenly Blue Grape Hyacinths—Blue Squills (Scilla Sibirica)—Blue Bells (Scilla Campanulata)—White Blue Bells—Wood Hyacinths (Scilla Nutans)—Winter Aconites.

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Eight glorious collections! Wonderful values!

100	Single Early Tulips in 10 named varieties. Bloom in April and early May.....	$5.00
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100	Darwin Tulips in 10 named varieties. Immense flowers on stems 2½ ft. tall in May and June	4.50
100	Cottage Tulips in 10 named varieties. The tulips of grandmother's garden, improved. May and June.....	5.00
100	Breeder or Art Tulips in 10 named varieties. In form like Darwins, wonderful shades of Bronze, Buff, Orange, etc. May and June.....	6.50
100	Bedding Hyacinths in 4 colors.....	12.00
100	Named Hyacinths, 2nd size, 4 varieties.....	18.00
100	Crocus in 4 named varieties. 1st size bulbs	4.00

For Naturalizing and Lawn Planting

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Our Old Dominion Collection in choicest mixture of airy and medium Trumpets, short cupped and lovely Poet's varieties. All first quality bulbs grown in Virginia where their culture has flourished since Colonial days. These bulbs, being native, are fully acclimatized and none better can be grown anywhere. The supply will not equal the demand. Order at once.

100 Bulbs.....$ 7.00
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Don't Miss This Extraordinary Offer!

100 DARWIN TULIPS $3.00

Choicest, first size bulbs, sure to bloom. Schling's Special Mixture made up especially for us from ten of the finest named varieties—not at all the ordinary field-grown mixture usually sold. A $6.00 value for only $3.00.

MADONNA LILIES

For June Gardens

To secure their gracious beauty for your garden next year at these unusually low import prices the bulbs must be ordered *now*. They will be delivered to you ready for planting next September.

IMPORT PRICES

Jumbo Size—Extremely large picked bulbs for unusual results (supply limited) **60c** each . . . $6.00 a dozen.
Regular Mammoth Bulbs—$3.50 a dozen; $25.00 per hundred.

No Deposit is required with order. Pay on delivery in September but if you wish, a **Cash Discount of** 5% may be deducted from prices if you send check with order.
Caution:—These prices are good on orders received before July 1st—NO LATER.
Send for our IMPORT BULB LIST. Many other bulb offers equally alluring.

REGAL LILIES

For July Gardens

These bulbs sell normally around $75.00 a hundred and higher. By a fortunate arrangement with one of the largest growers anxious for early orders, we are able to offer these magnificent bulbs to you now at these truly remarkable prices—if you order *now!* Bulbs, 5 to 6 inches in circumference, sure to produce 3 to 4 blooms the first season—

12 Bulbs ($12.00 value) $ 6.00
25 Bulbs ($22.00 value) 10.00
50 Bulbs ($40.00 value) 18.00
100 Bulbs ($75.00 value) 35.00

Max Schling Seedsmen, Inc.

Schling's Bulbs

618 Madison Ave., North New York City

Gentlemen:—Please enter my order for bulbs checked on enclosed list for which I agree to pay at these special import prices when order arrives about September 30, 1929.

☐ I am deducting 5% cash discount and enclose full payment in advance.

☐ Please send me your special "Import List" of Bulbs.

Name.....Address.....